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THE PRODUCTIVITY SLOWDOWN IN THE SERVICE SECTOR: CAN IT BE EXPLAINED BY MEASUREMENT ERRORS?

Martin Neil Baily and Robert J. Gordon

Almost two decades have now passed since the first signs of an emerging slowdown in U.S. productivity. The overall magnitude of the slowdown continues with little relief; in the business sector the annual growth rate for output per hour ("average labor productivity" or "ALP") was 1.8 percent slower over the interval 1973-87 than during 1948-73. A closer examination reveals divergent trends among major components of the slowdown since 1979. The growth in manufacturing productivity has revived to a rate even faster than before 1973, while growth in the non-goods sector has slowed further (Table 1).

In fact, if we are to believe the official government data on productivity by industry, the growth rate of ALP in two major parts of the service economy — transportation and finance/insurance/real estate (FIRE) — has been *negative* since 1979! And growth of ALP in business and personal services, while not worsening since 1979, has remained close to zero. Members of the service community are concerned about these trends, but they are also puzzled. With a massive investment in computers and other hi-tech equipment, could it really be true that output per worker in the service sector has stagnated, showing no growth at all over the past decade and half?

The question leads to a host of measurement issues examined in detail in a study of productivity growth of FIRE, transportation, construction and retailing.[1] Findings of that study are summarized in this article.

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Table 1. GDP Per Hour in the Major Sectors of the U.S. Economy
GDP in 1982 Dollars

	Average Annual Rates of Growth (Percent)				
	1948-73	1973-79	1979-87	1973-87	Slowdown 1948-73 1973-87
Business Sector	2.88	0.63	1.36	1.05	-1.83
Goods Producing Industries	3.21	0.55	2.39	1.60	-1.61
Farming	4.64	3.09	6.86	5.22	0.58
Mining	4.02	-7.05	2.34	-1.79	-5.81
Construction	0.58	-1.99	-1.67	-1.80	-2.38
Manufacturing	2.87	1.43	3.49	2.61	-0.26
Durable Goods excluding Non-Elec. Machinery	2.56	1.12	2.09	1.67	-0.89
Non-Elec. Machinery	2.03	0.70	11.54	6.76	4.73
Nondurable Goods	3.40	1.90	2.13	2.03	-1.37
Non-Goods Prod. Industries	2.49	1.39	0.17	0.69	-1.80
Transportation	2.31	1.06	-0.50	0.17	-2.14
Communications	5.22	4.25	5.09	4.73	-0.49
Elec., Gas & San. Serv.	5.87	0.05	1.44	0.84	-5.03
Trade	2.74	0.76	1.68	1.28	-1.46
Wholesale	3.14	0.10	2.39	1.40	-1.74
Retail	2.40	0.87	1.21	1.06	-1.34
F.I.R.E.	1.44	0.28	-1.15	-0.54	-1.98
Business & Personal Serv.	2.17	0.34	0.36	0.35	-1.82
Government Enterprises	-0.15	0.94	-0.15	0.32	0.47
General Government	0.21	-0.28	0.37	0.09	-0.12
Non-Profit Organizations	0.31	-0.88	-0.32	-0.56	-0.87
Emp. in Private Households	-0.35	-0.63	1.98	0.85	1.20
Rental Value of Owner Occupied Housing	n.a.	n.a.	n.a.	n.a.	n.a.

Dimensions of the Productivity Slowdown by Industry

The slowdown in productivity growth for the business economy as a whole, shown in Table 1, is -1.83% per year, the broadest measure of the overall slowdown. (The business economy excludes the four sectors shown at the bottom of the table.) The magnitude of the slowdown is the difference between growth for 1973-87 and growth for 1948-73.

The miniscule slowdown in manufacturing (-0.26%) contrasts with much larger slowdowns in key parts of the service economy — transportation (2.14%), electric and other utilities (-5.03%), wholesale and retail trade (-1.46%), FIRE (-1.98%) and business/personal services (-1.82%). Among the main parts of the service economy, only the communications sector has escaped with a minor slowdown of -0.49%.

Table 1 splits the 1973-87 slowdown period in 1979, the most recent year before 1987 with an unemployment rate of 6% or below. Between 1973-79 and 1979-87, there is a stark contrast between the stellar performance of the non-electrical machinery component of durable-goods manufacturing, where productivity growth has accelerated after 1979 from 0.70% to 11.54% per year, and the laggard performance of two important service industries in which productivity growth decelerated after 1979: transportation (1.06% to -0.50%) and FIRE (0.28 to -1.15%).

The outstanding performance of the non-electrical machinery industry stems from the segment of that industry producing computer processors and peripherals, since the official data on U.S. output is now based on the production of "computer calculating power," which, of course, has grown much faster than the number of computers shipped.

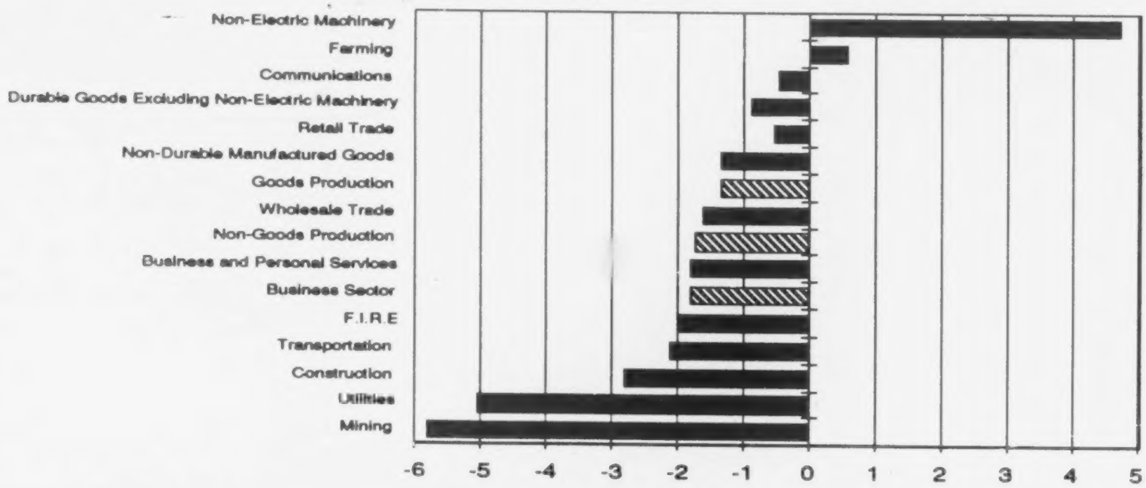
Clear payoff from computing power (in the form of electronic switching devices) has occurred in the communications industry, in which ALP has grown at almost 5% per year since 1973, with a minimal post-1973 slowdown. Some benefits of computerization may also be showing up in wholesale trade, where there was a substantial pickup in ALP growth after 1979. But there is still a basic puzzle. Since much of that rapidly growing calculating power produced in the non-electrical machinery industry is being purchased by business firms in the transportation and FIRE sectors, why hasn't the explosion of computer power boosted output per worker in these computer-using sectors, and why instead has productivity growth been negative since 1979?

The productivity slowdown presented by industry order of magnitude in Figure 1 shows, for example, that the biggest productivity slowdowns have been in the mining and utilities industries, where output is relatively homogenous and easy to measure. There is no close association between the magnitude of the slowdown and the likelihood of measurement error.

How Mismeasurement Can Occur — Labor Input Ignores Skill and Experience

Average labor productivity (ALP) is output divided by labor input measured in hours. Output, in turn, is calculated by dividing value of production in current dollars by a price index, or "price deflator." Of the three basic data series that are ingredients in productivity statistics — hours, current-dollar value of production, and price deflators — errors are most likely to be found in hours and price deflators. The current-dollar value of production is more likely to be measured with relative accuracy. The main defect in measuring the latter is the possibility that some economic activity in the underground economy may be missed. However, any such omission would not have any necessary implications for productivity growth, since labor input in the underground economy is missed as well.

Figure 1
The Change in Labor Productivity Growth Between the Periods 1948-1973 and 1973-1987
(Percent Change Per Year)



Possible mismeasurement of labor input is less complex and more straightforward than that of price deflators. The present official measure of hours of work treats labor input as a homogenous concept and weights each hour equally, no matter who is doing the work. By contrast, the conceptual ideal would weight each hour by how much it produces, weighting an hour of work by a highly skilled computer programmer more than an hour of work by a teenage cashier working at a supermarket. This comparison suggests why the proper measurement of labor hours is of interest to firms in the service economy: demographic changes taking the form of an increased share of teenagers and women in the workforce have had their greatest impact in the service sector.

One controversial problem is that we cannot observe the relative marginal product of groups of employees and must infer how much they produce indirectly by observing their relative wage. This technique is used by studies that attempt to convert the official data on hours to a measure of effective labor input; if a teenage male typically earns 40% of the wage of an adult male, his hours of work are multiplied by 0.4 when added to the hours of adult males.

While this approach may be acceptable for teenagers, who clearly have less experience and are less desirable employees because of high turnover, it is debatable approach for adult women, who could be just as productive as adult men but be paid lower wages as a result of discrimination. If so, the use of relative wages to measure relative productivities would lead to an understatement of the effective hours of women. The use of relative earnings to measure the effect of changes in educational attainment is conjectural for related reasons. College graduates may have higher earnings than high school graduates because they are more able people, irrespective of their educational attainment.

How much of the post-1973 slowdown in productivity growth was caused by mismeasurement of labor input? The contribution of greater educational attainment, i.e., years of schooling, seems to be negligible, since the growth rate of educational attainment was about the same before and after 1973. This leaves the increasing share of teenagers and women in the labor force as a factor that has caused the growth rate of effective labor input to speed up less rapidly than in the official data on raw hours of labor input. Hence, the growth of ALP since 1973 has slowed down less in relation to corrected hours than with respect to raw hours. Despite these controversies, it can be concluded that, on balance, a figure of 0.2% a year is a fair estimate of the contribution of labor input measurement errors to the total productivity growth slowdown of 1.8% a year.

Price Deflators Overlook Quality Improvements

If the growth of the current-dollar value of production is measured with relative accuracy, then any overstatement of the increase in the price deflator for a given industry or for the total economy leads directly to an understatement of the growth of output. For several decades economists have been aware of the possibility that price increases may have been overstated because of a failure of the official government price indexes to take adequate account of quality improvements. If a new higher-quality model typewriter is introduced at a 10% higher price, and we estimate that its higher quality is "worth" a 10% premium to the user, then the true quality-adjusted price has not increased at all.

There is substantial evidence, mainly for complex capital goods, that the government indexes have systematically failed to make adequate allowances for quality improvements and hence have overstated the rate of price increase and understated the growth of output and productivity for manufacturers of capital equipment and consumer durables. Quality adjustments by the government statistical agencies have indeed been made, but have been insufficient in amount. This failing has become more acute in the past decade as a result of rapid quality improvements made possible by electronic components. Government price indexes overstate price increases or understate price declines by relatively large amounts for such products as electronic typewriters, calculators, cash registers, photo copying machines, and telephone switching equipment. This finding that price deflators for durable goods in manufacturing understate quality improvements naturally raises questions about the adequacy of price indexes for the service sector.

Financial Sector Productivity Widely Understated

A detailed investigation of the FIRE sector produced persuasive evidence that the growth of output and productivity have been understated. In the dynamic banking and financial service sectors the case is clearest, because the official productivity data are not based on the deflated value of production, but instead *measure the growth of output by the growth of labor input*, a highly inadequate proxy. By definition, this approach ignores any gains in output per hour.

By contrast, the number of shares traded on financial markets per employee in the securities industry grew at an annual rate of 9.7% during 1973-79 and 12.3% during 1979-86. Labor productivity in check processing grew at an annual rate of 7.6% between 1971 and 1986. These are very large numbers. Productivity in check processing more than tripled in this period — the same one in which government data imply that there was no improvement in banking productivity at all. The banking and financial services industries taken together may well represent the single most important example of mismeasurement in official output and productivity data.

There are problems as well in the insurance and real estate industries. The price indexes used to deflate the value of services provided by insurance agents pertain not to their own activities, as they should, but rather to the industries being insured — especially auto repairs and medical coverage. If productivity growth in auto repairs is truly slow and its price deflator is measured correctly and rises relatively rapidly, while the insurance industry invests heavily in computers to keep from raising its fees, then the present procedure of deflating insurance output by the deflators of auto repairs and other insured industries doubtless leads to an understatement of output and productivity growth for the insurance industry.

The single biggest segment of FIRE is the real estate industry, whose current-dollar output consists of rental income and realtor commissions. Here, again, there is probably an error introduced by the failure to take quality improvements into account. A commercial office building today is very different from one built twenty years ago, along such dimensions as the speed and computer control of elevators, quality of heating and cooling systems, and provision of flexible wiring for electronic equipment. The typical suburban low-rise rental complex, centrally air-conditioned and centered around a swimming pool and health club, provides a distinctly higher level of quality for the residential rent dollar than the typical urban apartment building of the 1890s or 1920s. Despite a probable error in price deflators, part of the productivity growth slowdown in real estate may be accurately measured and reflect the willingness of real estate investors in the last decade or two to accept low returns in the form of current income in exchange for large anticipated capital gains (where the latter are properly not counted as part of real income or productivity).

Transportation: No Accounting for Deregulation

The startling negative growth rate of transportation productivity for the period since 1979 is based on Commerce Department GNP data. An alternative productivity index constructed by the Labor Department shows a much healthier picture, with productivity growth about 1.5% faster per year since 1973. While the reasons for the discrepancies between the two agencies are not entirely clear, one glaring error has come to the surface. The GNP data determine the output of the airline industry by dividing current-dollar sales by the Consumer Price Index (CPI) for air travel. But this price index makes no allowance for discount fares during the first phase of airline deregulation in the late 1970s and early 1980s. As a result of the spread of discount fares, the increase in airline "yield" (passenger revenue per mile) between 1972 and 1986 was just 61%, while the CPI for air travel over the same period increased by 191%, more than three times as much.

A consistent pattern in railroads and trucking duplicates that of airlines. Over the period since 1972, the growth rate of output as measured by physical units — e.g., ton miles — exceeds growth of the Labor Department's output measure, which in turn is greater than the growth of the output measure recorded in the official GNP data. There appears to be no simple measurement culprit for railroads and trucking analogous to the discount fare issue for airlines, but the implication of GNP data that average "quality" of a ton-mile has decreased steadily since 1972 is highly suspicious.

Retailing Measures May Be On Target

The official data on retailing productivity reveal a sharp difference emerging since 1972 between the performance of food and nonfood retailing. Productivity in the food sector (both supermarkets and food away-from-home) has *fallen* at a rate of about one percent per year, while nonfood retailing productivity has grown at a healthy rate of about 2.5% a year. Findings on supermarket productivity suggest that this is one case where the productivity slowdown is real. By virtually every measure the supermarket industry made more rapid progress in the first part of the postwar era than since the late 1960s. More rapid growth before the late 1960s is evident not just in real sales per employee, but also in such measures as the variety of items carried by supermarkets. Such indicators of consumer convenience as the percentage of stores open Sundays and on week nights also increased more rapidly in the early part of the postwar era, indicating that productivity growth would remain the same even if supermarket output were broadened to include "convenience."

Measurement Error May Account for Third of Slowdown

Based on these findings, roughly one-third, or 0.5% to 0.7%, of the productivity slowdown of 1.8% a year for the entire business sector can be attributed to documented or conjectured measurement errors. Errors in measuring labor input may account for about 0.2% to 0.3%, or at most, one-fifth of the total slowdown. Another contribution of 0.2% comes from output measurement problems, mainly the result of inadequate quality adjustments in price indexes for capital goods and from poor or nonexistent deflators in the FIRE sector. Further research is likely to turn up another 0.1% to 0.2% in such areas as medical care, where existing price deflators do not make an adequate allowance for quality change.

Two-thirds of the productivity slowdown, then, remains a real phenomenon occurring in the U.S. economy and is not surprising, for two reasons. First, part of the productivity slowdown is real, especially the depletion of oil resources (which shows up in the mining industry) and the effect of environmental regulations on the electric utility industry. Second, to explain the slowdown it is not enough to point to a source of mismeasurement; rather, it must be shown that such a source of mismeasurement *has gotten worse since 1973*. Some have, but others have been with us since long before 1973.

While these conclusions pertain to the economy as a whole, within specified industries in the service economy, the potential role of measurement errors as an explanation of the productivity slowdown is much larger. Banking and financial services probably represent an extreme case of need for better measures. In dynamic industries of this kind, where the role of the computer is pervasive, new and superior data could well show that productivity growth is at least as rapid as in manufacturing, or even as in the economically dynamic communications industry.

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[1] *"Measurement Issues, the Productivity Slowdown, and the Explosion of Computer Power," Brookings Papers on Economic Activity, vol. 19, 1988, no. 2, forthcoming in December 1988, will be available from the Brookings Institution, 1775 Massachusetts Avenue, Washington, D.C. 20036 (202/797-6000).*

AUSTRALIA, NEW ZEALAND SIGN SERVICES TRADE PACT OFFERING POINTERS FOR GATT TALKS

Charles P. Heeter, Jr.

Growing interest in trade in services as a vehicle for economic growth led recently to approval of a comprehensive services accord between Australia and New Zealand. The Australia-New Zealand Protocol on Trade in Services, signed on August 18, will be implemented on January 1, 1989 — the implementation date for the U.S.-Canada Free Trade Agreement (FTA) if Canadian voters return the Conservative Party to power in national elections on November 21. Together, these bilateral agreements may provide useful experience for negotiators in the Uruguay Round of GATT, who are wrestling with complex issues on services in a multilateral context.

The Australia-New Zealand Protocol is the latest of a series of agreements between the two countries in a long-standing effort to establish closer economic ties. Both countries rely heavily on international trade, but unlike the United States and Canada, their geographic proximity has not made them each other's largest trading partners. Instead, the relatively small size of their economies, combined with their heavy dependence on agriculture and commodities, required them to look to the rest of the world for export markets. As prices of commodities fell in the early 1980s, both countries sought to diversify their exports. In doing so, they recognized that an enlarged market between them would hone the abilities of their manufacturers and service industries to compete in the global marketplace.

The Protocol on Services was negotiated under the Closer Economic Relations-Trade Agreement (ANZCERTA), a 1983 agreement intended to move the two countries to free trade in goods by 1995. During the 1988 review of the Agreement, negotiators decided to accelerate the timetable to mid-1990 and to expand the scope to include services even earlier.

Bilateral Pacts Have Much in Common

Similar in many respects to the U.S.-Canada FTA, the Australia-New Zealand accord has as its centerpiece the principle of national treatment — the requirement that each country treat service providers of the other no less favorably than its own. It also encourages mutual recognition of licensing and certification requirements, such as those for accountants and architects, and assures they will not be used to unfairly restrain one country's professionals from practicing in the other.

Additional rules ban the introduction of new government subsidies to promote services exports and require government monopolies, such as the postal or telephone services, to treat all customers from the two countries on an equal basis with respect to services offered and rates charged.

Most important, the agreement requires the two governments to regulate services in a transparent way. Laws and regulations must be made public and, in developing new measures, the governments must allow affected companies from either country to comment. Governments must notify each other of new developments affecting the agreement and consult with each other to resolve disputes. In addition, a comprehensive review of the Protocol, with an eye to further liberalization, must be conducted by the end of 1990.

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Lessons for Geneva

Negotiators for both the Australia-New Zealand and U.S.-Canada accords caution against expecting an easy translation of their approaches to the Uruguay Round negotiations in Geneva. Success in these bilateral talks was conditioned on a history of close economic relations, a considerable degree of existing free trade and a limited number of negotiating parties. Even so, they offer some useful experience on how to find common ground:

- Significant progress on services was possible as part of a broader trade undertaking involving many non-service commercial issues. This was not a question of trade-offs between services and manufacturers or agriculture, but rather one of rising expectations. Similarly, progress on goods negotiations in Geneva should spur progress in services and movement on services should encourage movement in other areas.

- The bilateral talks placed a premium on pragmatism. Instead of arguing over concepts and definitions, negotiators quickly identified what they knew to be commercial services and then negotiated how rules might be applied in these industries. While the Australia-New Zealand approach of implementing the rules across the board with very limited exceptions gets closer to the model of free trade, the U.S.-Canadian approach of excluding the more politically sensitive service industries may be more politically acceptable in a multilateral context. In either case, progress came only when real industries and actual barriers were put on the table.

- Approaches to services went beyond the strictly defined "trade" context in order to realize true benefits. Rules that cover only crossborder sales immediately exclude many services that must generally be delivered at the location of the customer. The U.S.-Canada pact broke ground by liberalizing investment rules and permitting freer movement of business people across the border, issues of prime importance to service industries. And under ANZCERTA, Australia and New Zealand have launched a program to harmonize business regulations such as competition policy, consumer protection and copyright law, in order to reduce red tape and costs for service providers, while still meeting the public purposes for which these laws were established.

- Finally, the two agreements demonstrate that bilateral services efforts need not be in conflict with commitments to multilateral services trade. Both specifically take account of the countries' multilateral obligations, and neither raises barriers to third countries.

The Uruguay Round negotiators would do well to examine these approaches as they work to achieve a multilateral agreement that truly spurs the growth of international services.

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SERVICES ECONOMIC HIGHLIGHTS

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Services At a Glance

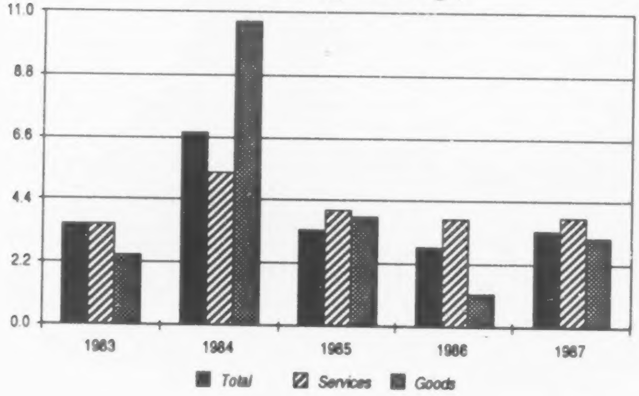
- ***Service Sector GNP Measured by Production***, available on an annual basis only, increased 3.9% in 1987 and 3.8% in 1986.
- ***Services GNP Measured by Expenditures***—or the service components of expenditures by consumers, businesses, government and the net service export balance—increased 2.8%, at an annual rate, in the second quarter of 1988.
- The ***Service Sector Leading Index***, which leads the sector's activity by about six months, rose at an annual rate of 0.1% in August, while the Commerce Department's Index of Leading Indicators (LEI) grew 1.7%. The annual growth rate of the Coincident Index, reflecting current economic conditions for the Service Sector, was a solid 3.1%.
- ***Employment*** growth in Service-Producing industries continued to be robust through September. An additional 2.258 million persons have joined the Services workforce since the end of 1987. For all of 1987, the increase was 2.5 million.
- ***Personal Consumption Expenditures*** on services increased at an annual rate of 2.8% in the second quarter, following a 3.9% gain in the first quarter.
- ***Prices of Consumer Services*** were up 4.6% in September compared with the price level a year ago.
- ***Profits*** of Service-Producing industries rose 2.6% in the second quarter of 1988 over the second quarter of 1987.
- ***Plant and Equipment Expenditures*** by Service-Producing industries increased at an annual rate of 21.1% in the second quarter, following unchanged spending in the first.
- The ***Stock Price Index*** for Services increased 3.5% in September, following small declines in July and August.
- ***Net Services Exports*** posted a deficit of $492 million in the second quarter of 1988, the first time since 1958—attributable to a deterioration in the investment income balance. The balance on true services trade was $2.5 billion.

Bottom Line: Service Sector economic expansion is steady, though at a slower pace than in recent years; employment gains remain strong. The "boomy" growth rates of the Goods Sector seen over the past year are also moderating.

The Service Economy refers to the total economy, in which the Service Sector is the dominant factor. The Service Sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

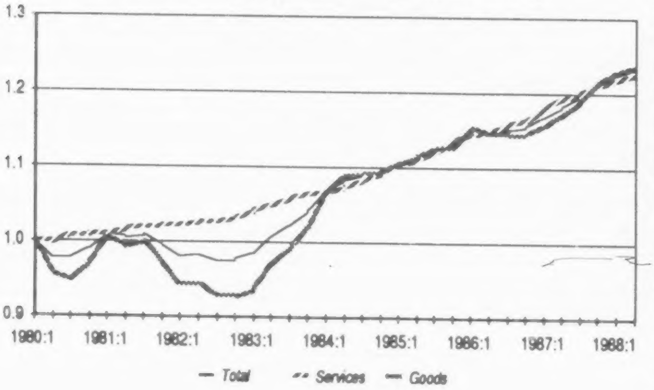
The Service Economy at a Glance

Chart 1
GNP Product Measure
(Percent Change Year Ago)



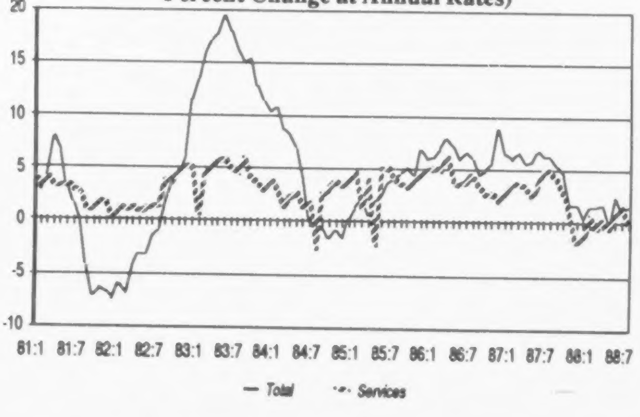
Services Output GNP Higher
Services GNP measured by product, i.e., the total output of all services, increased 3.9% in 1987 following a 3.8% increase in 1986. The product measure of goods GNP was 3.2% following a 1.2% increase in 1986. Within the Goods Sector, Manufacturing GNP was up 4.3% and Agriculture, Construction, and Mining 0.9% in 1987.

Chart 2
Real Gross National Product
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Expenditures GNP Up
Second quarter real Services GNP—measured by expenditures—increased at an annualized 2.8%, following an upward revised 2.4% growth rate in the first quarter. The Goods component—including Construction—increased 3.1%, slower than the 4.2% posted in the first quarter. Goods less Construction GNP increased 3.3%. Total GNP increased 2.9% in the second quarter, after a 3.4% growth in the first.

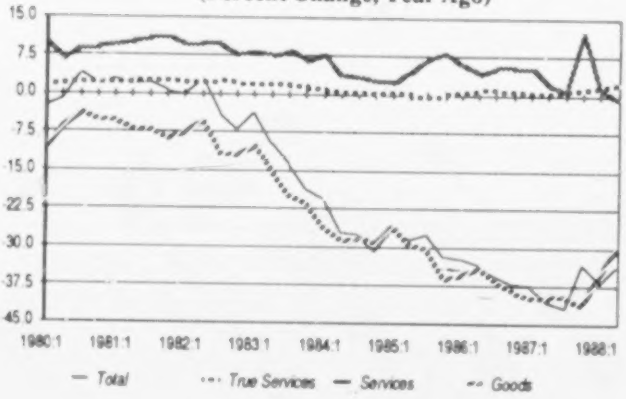
Chart 3
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed Percent Change at Annual Rates)



Services Leading Index Flat
The Leading Index for the Service Sector edged up 0.1% in August, following a 1.7% rise in July, with the Coincident Index for Services slowing to a 3.1% increase, after a large 4.6% rise in July. The leading indicator index for the total economy rose 1.7% in August and 1.2% in July.

The Service Sector Indices are produced by the Center for International Business Cycle Research, Columbia University.

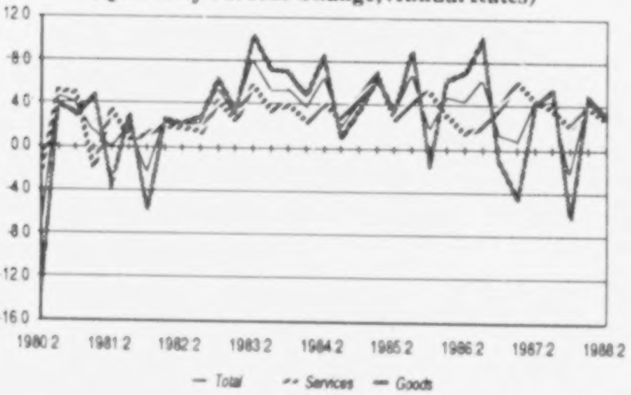
Chart 4
Current Account Balance and Components
(Percent Change, Year Ago)



Service Balance in Deficit; Trade in Services in Surplus

The total Services trade balance was in deficit by $0.5 billion in the second quarter of 1988—the first time since 1958. The deficit is the result of a deteriorating investment income balance. The surplus on the true service balance has rose to $2.5 billion from $1.6 billion in the first quarter. The merchandise trade deficit improved to $33.3 billion, from $36.9 billion in the first quarter.

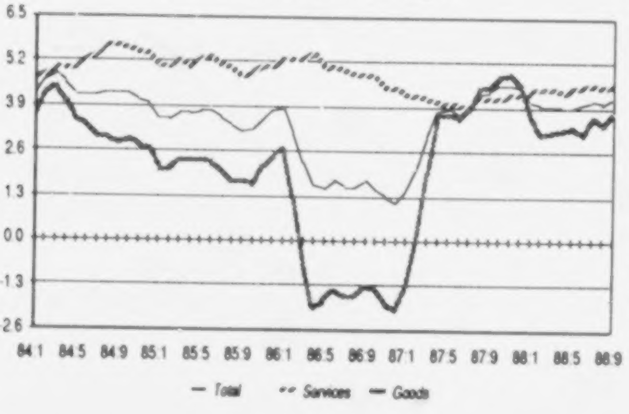
Chart 5
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Up 2.8%

In the second quarter of 1988, personal consumption expenditures on Services increased at an inflation-adjusted 2.8% annual rate, while personal expenditures on Goods increased 3.2%. In the first quarter, consumption expenditures on Services were up a revised 3.9%, and on Goods, a revised 4.9%.

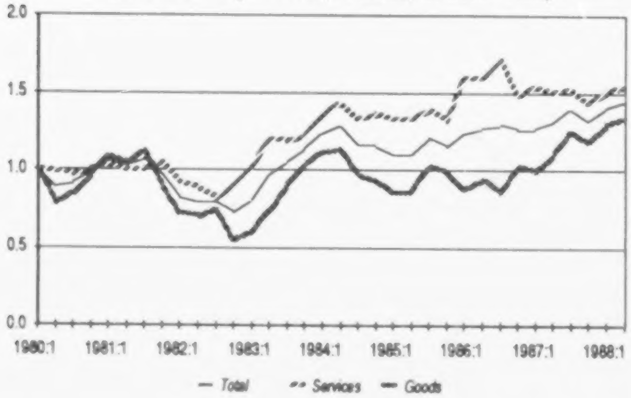
Chart 6
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Still High

The year-over-year price increase in the Service component of the Consumer Price Index (CPI-U) for September accelerated slightly to a 4.6% rate from a year-over-year 4.5% increase in August. The year-over-year increase in the Goods component of the CPI-U was 3.8%, up considerably from 3.4% in August. The overall CPI-U increased 4.2% in September, following a year-over-year inccrease of 4% in August.

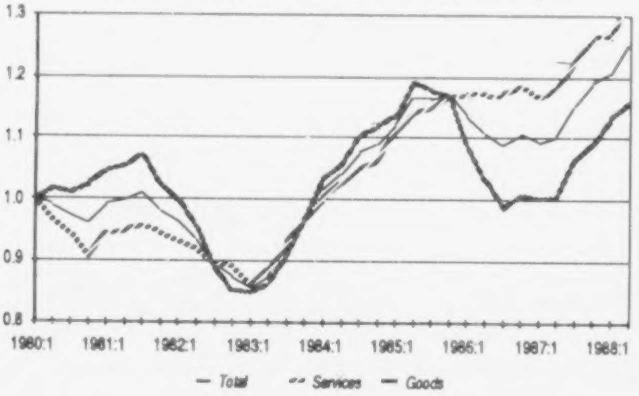
Chart 7
Corporate Profits for Domestic Industries
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Sector Profits Pick Up

In the second quarter of 1988, profits of Service-Producing industries increased 2.6%, following year-over-year declines in the previous five quarters. Profits of Goods-Producing industries rose 22.1%, compared to a year ago. In 1987, profits of Service industries declined 6% after an increase of 19.4% in 1986. Profits of Goods industries grew 22% in 1987, following declines of 0.4% and 10.3% in the previous two years, respectively.

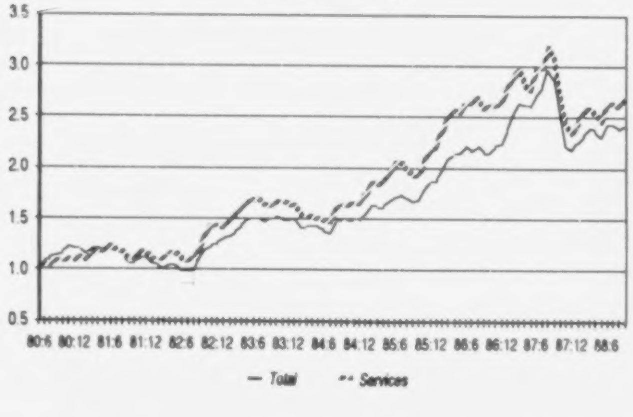
Chart 8
Real Expenditures on Plant and Equipment
(Total and by Sector, Indices, 1980:1 = 1.0)



Services Investment Climbs

Service industries increased real expenditures on plant and equipment (P&E) by a large 21.1%, at an annual rate, in the second quarter, following an upwardly revised 0.8% contraction in the first quarter. Goods industries increased capital outlays 8.7%, after a larger 15.2% increase in the first quarter. Overall spending on P&E increased 15.9% in the second quarter, following a 5.8% increase in the first.

Chart 9
S&P 500 and Services Stock Price Indices
(1980:6 = 1.0)



Stock Prices Lower

The Services Stock Price Index and S&P 500 rebounded in September—3.5% and 1.6%, respectively—following small declines in July and August. The Services Stock Price Index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

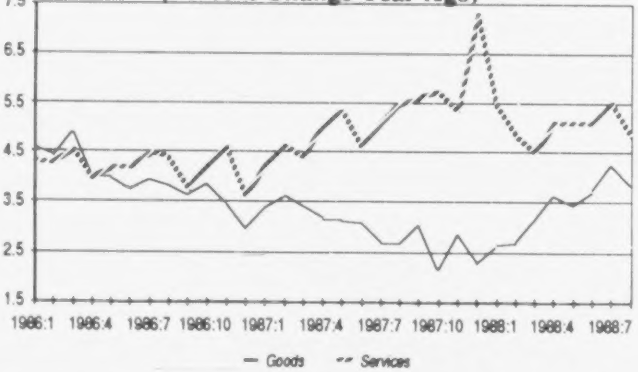
SERVICES AND THE JOB QUALITY DEBATE

by Allen Sinai and Michael Drury

During the past year, the service sector has added 3.1 million workers to its rolls, while goods producers have absorbed 700,000. The service sector has accounted for more than 81% of net new jobs so far in 1988. Presently, service sector jobs represent approximately 76% of all employment in the United States.

Compensation per employee in service-producing industries has risen 4.8% over the past twelve months, while goods-producing employees have seen an average 3.8% increase in compensation. This continues a six-year pattern of better wage gains in the service sector, although from a lower level of average compensation per employee, than in the goods sector.

Chart 1
Compensation Per Employee
(Percent Change Year Ago)



"Good Jobs at Good Wages"

The rapid growth of employment in the service sector, but at average compensation levels below those in the slower growing goods-producing sector, has become a central issue in the Presidential campaign. The debate focuses, in large part, on whether the new service sector jobs are "quality" jobs — in terms of wages, benefits, upward mobility and potential job tenure.

Yet, there has been little discussion of the economic forces behind the shift in sector employment. As in all advanced industrial societies, the demand for services rises fastest as incomes grow and societies become richer, since the demand for basic items such as food and shelter are already satisfied.

Indeed, a major indication that a society's standard of living is rising is the availability of discretionary income to purchase services such as better medical care, education, or, for example, professional advice in legal, financial and other personal matters. Workers with rising incomes buy services such as child care, food preparation, laundry and dry cleaning to free up leisure time to enjoy other services like entertainment and travel.

Decisions on the level of hiring and pay in both the goods and service sectors are determined by the supply and demand for labor. Both sectors have high-paying and low-paying industries or positions, largely reflecting the level of skill needed to perform each particular job and the availability of workers with those skills — as well as the cost of available alternatives such as moving production overseas or increasing investment in technology.

Lies, Damn Lies and Statistics

In defending claims that the U.S. is or is not creating good jobs at good wages, both candidates have put forth a blizzard of statistics — often with conflicting interpretations of the same data. A recent flurry of academic reports on the topic have been just as divided on the evidence.

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The root of the problem lies in the fact that numbers, like words, can be leveraged to support a particular position. Different results can be obtained by looking at wages, rather than broader income measures covering wages, salaries, benefits and proprietors' income from self-employment. Excluding agriculture sector wages and employment also may bias the results. Also, the level of inflation-adjusted income depends on which price measure is used. The Consumer Price Index has been changed many times in its forty-year history, and there are alternative price measures, such as the personal consumption deflator, as well.

Furthermore, the choice of time period is crucial to the result of any study. Preferably, data should be analyzed over comparable periods — for example, from peak to peak or trough to trough in the business cycle. However, since the current economic cycle is still unfolding, new evidence may continually redraw the economic landscape.

One way to bring current trends in employment and earnings into sharper focus is through an historical perspective. How is employment performing in this expansion relative to past economic expansions? Is income growth stagnating? How have the various sectors of the economy fared in both job growth and wage gains?

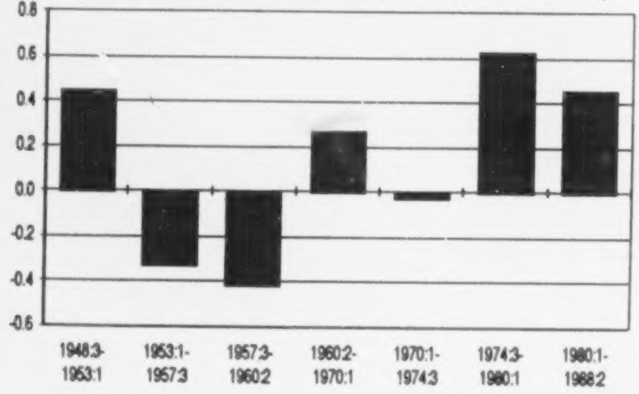
Job Growth Reflects Population Growth

Two of the key reasons for the steady growth in employment throughout the postwar period has been the entrance of the baby boom generation into the labor force and the rising proportion of women who choose to work.

Employment growth naturally reflects the growth in work-age population (persons over 16 years of age), so the entry of millions of young workers into the labor pool during the late 1960s and the early 1970s swelled employment. Indeed, the rising number of births each year from the depressed 1930s to the peak of the baby boom in 1959 is a major factor in the constant job growth of the U.S. during the postwar period. Now, slower growth in the adult population, as the baby bust generation of the late 1960s enters the labor force, is slowing the rate of increase in employment.

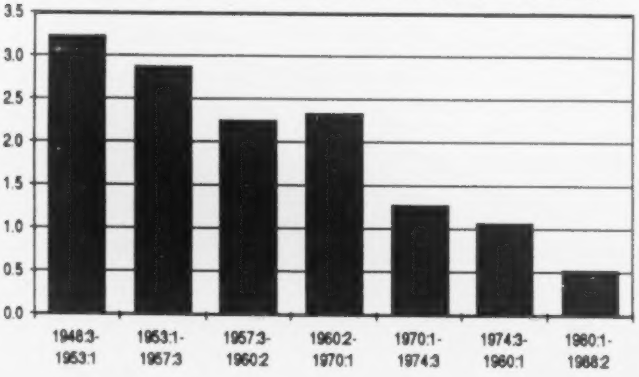
To gain a clearer picture of employment trends, employment growth can be adjusted for population growth just as income measures are adjusted for inflation. Chart 2 shows how employment growth would have appeared if the work-age population had remained constant over the postwar period. During the post-Korean war period in the 1950s, employment would have declined except for population growth. During the long expansion of the 1960s, jobs grew at only a moderate pace net of the strong growth in work-age population caused by the entry of the baby boom into the labor force.

Chart 2
Total Postwar Employment Growth
Assuming Work-Age Population Stayed Constant
(Annual Rates of Growth, Between Economic Peaks)



Since 1974, population-adjusted job growth has been significantly stronger, primarily due to rapid growth in labor force participation of women. During the late 1970s, the percentage of work-age

Chart 3
Total Real Nonfarm Compensation Per Hour
(Annual Rates of Growth, Between Economic Peaks)



adults with jobs rose at an 0.63% per-annum rate — the fastest in the postwar period. More recently, population-adjusted job growth has slowed slightly due to slower growth in the percentage of work-age women with jobs.

Income: A Creature of Supply and Demand

Income growth in the United States has slowed throughout the postwar period due in large part to rapid growth in the supply of labor. At home the baby boom and influx of women into the workforce have increased competition for jobs, thus holding down wage gains. Moreover, growing international competition adds particularly to the available supply of low-wage labor — forcing domestic workers to limit wage gains or accept wage cuts in some areas, or see the jobs move overseas.

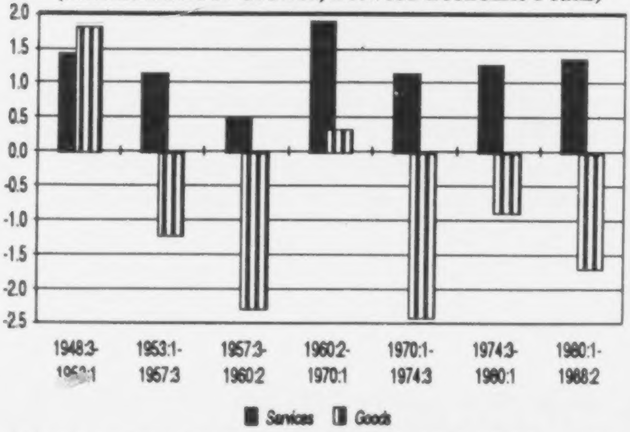
The broadest measure of nonfarm workers' remuneration, compensation per hour, when adjusted for inflation, shows real purchasing power has risen at a modest 0.5% per year since the last cyclical peak in the first quarter of 1980 (Chart 3). Growth in real proprietor's income — that is, inflation-adjusted income from self-employment — has also slowed, on average, over the postwar period to an 0.5% annual rate during this business cycle.

Real nonfarm compensation per hour measures not only changes in wages and salaries, but also changes in benefits. For most of the postwar period, benefits have added significantly to wage and salary growth. Since 1982, however, average real benefits per worker have slumped, exacerbating the slowdown of income growth. Benefits have declined because companies often choose to cut these less visible forms of pay, rather than wages, when trimming labor costs. Lower benefits also reflect the shifting shares of employment in the goods and service sectors, since benefits account for more than 30% of goods sector compensation, but only 26% of remuneration in the service sector.

Steady Service Sector Job Growth in All Postwar Years

Throughout the postwar period, growth in service sector employment, adjusted for population growth, has maintained a stable pace, averaging 1.4% per year (Chart 4). This pattern of consistent growth is markedly different from the experience of the agriculture and goods sectors over the same years. Farm sector employment has fallen in every postwar business cycle, while growth in goods-producing jobs has failed to even match population growth in five of the seven postwar cycles. Moreover, while the decline in farm sector employment,

Chart 4
Employment Growth by Sector
Adjusted for Population Growth
(Annual Rates of Growth, Between Economic Peaks)



adjusted for population growth, is now slowing, the far larger goods-producing sector has seen its largest population-adjusted job losses over the past eighteen years. Growing pressure on U.S. job creation from less costly labor overseas and technological advances in productivity-enhancing equipment suggest that goods sector jobs will continue to decline.

Yet, not all industries in the goods sector nor all industries in the service sector, have followed the same patterns on hiring and pay over the postwar period. The fortunes of the goods and service sectors are not distinct and separate, but inextricably intertwined in the complex economy of an advanced industrial nation. It is the different economic forces affecting supply and demand for labor in each industry which determine the level of jobs and wages.

Increased Competition Hampers High-Wage Job Growth

Manufacturing, which accounts for the lion's share of the goods sector economy, has borne the brunt of the population-adjusted decline in that sector's employment. Fierce international competition has shifted jobs overseas to lower-cost production centers and stimulated strong productivity gains domestically, as companies have exploited technological advances and cut the demand for manufacturing workers. Only during the business cycles containing the Korean conflict and the Vietnam War did manufacturing jobs rise faster than population growth — because military goods, for reasons of national security, are not subject to international competition (Table 1).

Table 1
Employment Growth by Sector Adjusted for Population Growth
(Annual Rates of Growth, Between Economic Peaks)

Period from Peak to Peak	1948:3-1953:1	1953:1-1957:3	1957:3-1960:2	1960:2-1970:1	1970:1-1974:3	1974:3-1980:1	1980:1-1988:2	1948:3-1988:2	1948:3-1974:3	1974:3-1988:2
Payroll Employment	1.68	-0.01	-0.44	1.23	-0.09	0.80	0.60	0.68	0.69	0.68
Goods	1.88	-1.44	-1.96	0.09	-1.68	-0.76	-1.62	-0.70	-0.39	-1.27
Manufacturing	1.92	-1.72	-1.87	0.14	-2.01	-1.25	-2.01	-0.90	-0.47	-1.71
Construction	3.76	0.64	-1.28	0.53	-0.28	0.60	0.61	0.71	0.77	0.61
Mining	-3.58	-2.39	-6.42	-3.04	0.56	4.51	-4.76	-2.22	-2.77	-1.16
Services	1.54	0.98	0.53	1.87	0.70	1.48	1.42	1.36	1.32	1.44
Transportation & Utilities	-0.24	-1.36	-3.32	-0.39	-1.23	-0.17	-0.37	-0.75	-0.99	-0.29
Wholesale Trade	1.03	0.18	-0.14	0.91	0.17	1.28	0.55	0.66	0.57	0.84
Retail Trade	1.38	0.35	0.29	1.42	0.74	1.46	1.64	1.19	0.99	1.57
Finance Insurance & Real Estate	2.40	2.39	1.07	1.77	0.89	1.89	2.02	1.83	1.76	1.97
Other Services	1.56	2.31	1.79	3.06	1.41	2.99	3.20	2.55	2.25	3.12
Government	2.93	1.82	1.81	2.57	0.78	0.46	-0.35	1.37	2.11	-0.03

Sources: Department of Commerce and The Boston Company Economic Advisors, Inc.

Ironically, wage growth in manufacturing exceeded wage growth in other sectors even while the number of manufacturing jobs were declining relative to the work-age population during the 1970s. This paradox arose, in part, because unions generally favored wage gains over employment security in the 1970s. This position has been reversed in the 1980s, leading to declining real wages, on average, in manufacturing industries.

Furthermore, the apparent wage growth in manufacturing is, in part, illusory — created by the fact that low-paying, low-skill manufacturing jobs in industries such as textiles and apparel have moved overseas faster than higher-paying steel and automobile production jobs. Thus, a growing percentage of the manufacturing jobs remaining in the U.S. are in relatively higher-paying industries, creating an upward bias on reported average wages.

In the service sector, high-paying transportation and public utilities employment also has failed to keep pace with population growth throughout the postwar period. Competition from the

Table 2
Average Hourly Wages for Production Workers, Adjusted for Inflation
(Annual Rates of Growth, Between Economic Peaks)

	All	Construction	Manufacturing	Trans. & Public Util.	Wholesale Trade	Retail Trade	Fin., Ins. & Real Estate	"Other Services"
1964:1-1970:1	1.91	2.95	1.37	1.43	n.a.	n.a.	1.54	2.83
1970:1-1974:3	0.71	0.73	0.84	2.27	n.a.	n.a.	-0.87	1.18
1974:3-1980:1	0.00	-1.44	0.63	0.81	0.23	-0.19	-0.56	-0.17
1980:1-1988:2	-0.41	-1.14	-0.29	-0.40	-0.19	-1.38	1.04	0.66

Sources: The Department of Commerce and The Boston Company Economic Advisors, Inc.

automobile — a lower cost transportation option — reduced demand for public transportation. Technological advances in communications eliminated many jobs in that industry. Yet, until this business cycle, as in manufacturing, real wages continued to grow at the expense of new jobs.

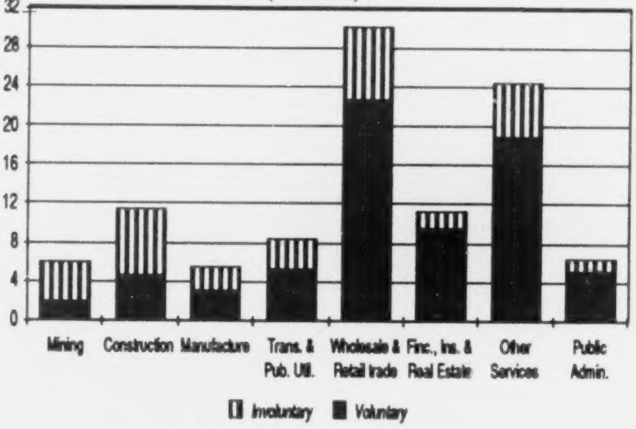
During the current business expansion, new competition due to the deregulation of broadcasting, airlines and trucking has been the equivalent of foreign competition for manufacturers. Increased pressure on corporate revenues has translated into cutbacks on both wages and hiring.

Alternatively, in the goods-producing construction sector — where domestic producers have generally not felt increased competition from foreign producers or deregulation — job gains have exceeded population growth in all but two postwar cycles, the late 1950s and early 1970s. Yet, construction wages have slipped in real terms since 1974 as competition for jobs from the readily available pool of skilled manual laborers, thrown off by the manufacturing, mining, transportation and public utilities sectors, has diluted wage growth.

Are Part-Time Positions Really Low Quality Jobs?

On the low-wage end of the employment spectrum, the rapid growth in part-time employment has been at the center of the debate about perceived low quality jobs. Retail trade and the "Other Services" sector are singled out in this argument due to the high percentage of part-time workers and relatively low wages, on average, in these industries (Chart 5). But the "Other Services" segment of the service sector covers a diverse range of employment from high-paying positions in health services, business services, and legal services to lower-paying jobs in personal care services and domestic services.

Chart 5
Comparative 1987 Part-Time Labor Statistics
(Percent)



Moreover, the bulk of part-time workers in retail and "Other Services" jobs are part-time by choice (Chart 5). Many, such as mothers with children in school or students, would not be able to participate in the workforce at all if flexible part-time hours were not available. Similarly, workers who would prefer full-time work, but cannot find it in any other industry, often end up working part-time in the retail and "Other Services" industries, because there are more opportunities for part-time positions.

The larger percentage of part-time jobs in the retail and "Other Services" industries, and their lower wages, on average, reflect the lower skill requirements and often transitory nature of many of these positions. Industries from manufacturing to financial services, which invest more heavily in worker training generally, expect a longer term, full-time commitment. Moreover, positions in the retail and some "Other Services" industries appear relatively low in pay compared with manufacturing jobs, in part because the lowest-skill, lowest-paying factory jobs have been shifted overseas. Many retail and "Other Services" jobs, which are generally tied to a specific location, do not have that option.

In addition, measuring the value of a job only by wage compensation ignores the greater contribution the position may make to a complex economy. Many lower-paying service jobs are substitutes for household tasks, which due to technological advances and increasing population density have achieved the economies of scale which make them a viable business in the market economy. The availability of these services has freed time for workers, particularly women, to undertake other productive activities, raising U.S. production and the general standard of living.

The Boom In High-Pay Services

The focus on the quality of part-time jobs often overshadows the tremendous growth in high-paying, full-time jobs within the service sector. Over 25% of all financial services jobs are executive or professional positions. Over 40% of employment in "Other Services" meet those criteria — the highest level in any employment sector. Executive and professional jobs pay, on average, more than $11.50 per hour — substantially above the current $8.31 national average for all wage and salary workers.

Rapid growth in these high-skill, high-paying occupations has kept both job growth and real wage gains in the "Other Services" sector growing more rapidly than in any other area of employment over the past twenty years. Indeed, in the current expansion, business and professional services employment has grown over three times as fast as employment gains in general — up at an 8% annual rate (Table 3). Legal services positions are up at a 6% annual rate and financial services employment at a 4%+ rate. As the economy becomes increasingly complex and internationally oriented, business has sought out specialists in finance, law, advertising, engineering and a wide spectrum of business services.

Growing personal discretionary income has also made rapid growth in health care employment a mainstay of the postwar period — although pressure on Medicare cost-sharing slowed this expansion in the mid-1980s. Since 1985, however, health-related employment has risen at a 3.5% annual rate.

The high wages in these industries reflect the fact that investment in higher education throughout the postwar period has produced above average returns in terms of income. Higher pay reflects the scarcity of highly skilled persons relative to the demand for their skills. The scarcity is partially a function of the lesser importance of competition from foreign labor in industries such as legal counseling, which generally concerns local laws, or health care, where the immediacy of treatment is often a major factor. The importance of complex problem-solving skills, and the lack of repetitive tasks also makes it difficult and expensive to automate many high-paying service positions, thus, maintaining higher wages.

Job Expansion in Service Sector Likely to Continue

The debate over good jobs for good wages is driven by two misconceptions — first, that economic policy can be designed to create both the number of jobs and the wages for those jobs,

Table 3
Employment Growth by Industry

	Thousands of Workers in:			Annualized Percent Change	
	1982	1985	1987	1982-1987	1985-1987
Total Employed	99,526	107,150	112,440	2.47	2.44
Goods Producing Sector	30,640	32,143	32,609	1.25	0.72
Agriculture & Fishery	3,471	3,253	3,300	-1.01	0.72
Forestry	99	85	100	0.20	8.47
Mining	1,028	939	818	-4.47	-6.67
Construction	5,756	6,987	7,456	5.31	3.30
Manufacturing	20,286	20,879	20,935	0.63	0.13
Service Sector	68,886	75,008	79,830	2.99	3.16
Transportation	4,303	4,459	4,815	2.27	3.92
Communications	1,533	1,603	1,525	-0.10	-2.46
Utilities & Sanitary Services	1,428	1,486	1,539	1.51	1.77
Wholesale Trade	4,120	4,341	4,580	2.14	2.72
Retail Trade	16,638	17,955	18,812	2.49	2.36
Finance, Ins. & Real Estate.	6,270	7,005	7,763	4.36	5.27
Other Services	30,089	33,164	35,550	3.39	3.53
Business and Professional Services	4,359	5,647	6,431	8.09	6.72
Auto & Repair Services	1,655	1,971	1,930	3.12	-1.05
Cleaning, Domestic, etc.	2,040	2,096	2,153	1.08	1.35
Lodgings	1,270	1,451	1,597	4.69	4.91
Beauty & Barber Shops	683	805	848	4.42	2.64
Entertainment & Recreation Services	1,205	1,358	1,444	3.69	3.12
Health Services	7,810	7,910	8,478	1.65	3.53
Legal Services	848	995	1,138	6.06	6.94
Educational Services	8,084	8,107	8,349	0.65	1.48
Religious Organizations	675	728	790	3.20	4.17
Welfare & Social Services	973	1,682	1,946	14.87	7.56
Membership Organizations	487	414	446	-1.74	3.79
Public Administration	4,505	4,995	5,246	3.09	2.48

*Sources: **Bureau of Labor Statistics and The Boston Company Economic Advisors, Inc.***

and second, that job quality is measured only by the wage paid to the employee. The significant decline in the membership of powerful unions such as the steelworkers is testament to the fact that mandated high wages invite other employer options in the form of foreign production or investment in new technologies where machines replace workers.

The view that job quality is measured by high pay focuses more on the fact that highly skilled workers will generally earn higher wages, than on the true contribution of all jobs to the overall economy. The alternative to low-paying jobs for many workers would be no jobs, robbing the U.S. of these productive resources and lowering overall living standards.

The service sector, reflecting its diverse nature, encompasses both the highest-paying and lowest-wage industries of the economy. Growing incomes suggest that jobs in these industries will increasingly be in supply as consumers and businesses spend a rising share of income on services — as they have throughout the postwar period. Indeed, the local market orientation of many service sector jobs suggests that these industries will continue to provide the largest share of new employment in the U.S. in coming years, as rising real incomes in the U.S. lead cost conscious producers to make transportable goods in less expensive labor markets abroad.

Table 1
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1983	1984	1985	1986	1987
GNP—Expenditure Measure	3776.7	3823.0	3865.3	3923.0	3956.1	3985.2	3279.1	3501.4	3618.7	3721.7	3847.0
Services	1778.2	1797.2	1806.6	1822.3	1833.4	1846.1	1585.5	1625.2	1684.4	1738.1	1801.1
Goods	1998.5	2025.8	2058.6	2100.6	2122.7	2139.1	1693.6	1876.3	1934.5	1983.7	2045.9
Construction	382.4	380.2	381.1	386.7	374.6	376.7	326.6	367.1	380.8	384.7	382.6
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3279.1	3501.4	3618.7	3721.7	3847.0
Services	NA	NA	NA	NA	NA	NA	2192.8	2312.0	2407.8	2498.9	2595.4
Goods	NA	NA	NA	NA	NA	NA	1022.7	1132.3	1176.1	1190.6	1228.9
Manufacturing	NA	NA	NA	NA	NA	NA	675.5	757.9	786.8	804.6	839.5
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	327.2	374.4	389.3	386.0	389.4
Consumption Expenditures	2490.2	2516.6	2545.2	2531.7	2559.8	2579.0	2146.0	2249.3	2354.8	2455.2	2520.9
Services	1222.0	1235.5	1246.8	1253.6	1265.9	1274.8	1062.7	1100.3	1152.3	1190.7	1239.5
Goods	1268.3	1281.1	1298.4	1278.1	1293.8	1304.2	1083.3	1149.0	1202.5	1264.5	1281.5
Plant and Equipment Expenditures	370.7	374.7	391.2	403.1	408.9	425.1	307.0	358.0	391.6	376.3	384.9
Services Industries	218.2	221.4	229.0	236.9	236.4	248.9	170.4	193.6	213.7	219.7	226.3
Goods Industries	152.5	153.3	162.2	166.2	172.5	176.3	136.6	164.4	177.9	156.6	158.6
Corporate Profits— Billions of dollars	213.0	219.2	234.6	222.2	236.6	243.1	166.6	203.2	191.4	212.8	222.3
Service Industries	128.2	125.4	127.6	120.5	126.0	128.6	96.4	114.5	111.8	133.4	125.4
Goods Industries	84.8	93.8	107.0	101.7	110.6	114.5	70.2	88.8	79.7	79.4	96.8
Current Account Balance— Quarterly rates)	-37.6	-40.9	-42.0	-33.5	-36.9	-33.3	-46.3	-107.1	-115.1	-138.8	-154.0
Services Balance	5.2	1.8	0.7	12.0	1.4	-0.5	30.3	17.5	22.1	21.0	19.8
True Services Balance [1]	0.5	0.6	0.8	1.2	1.6	2.5	6.6	2.0	0.4	3.3	3.1
Merchandise Trade Balance	-39.9	-39.6	-39.7	-41.2	-35.2	-29.9	-67.1	-112.5	-122.1	-144.5	-160.3

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1987:1	1987:2	1987:3	1987:4	1988:1	1988:2	1983	1984	1985	1986	1987
GNP—Expenditure Measure	4.5	4.9	4.4	6.0	3.4	2.9	3.6	6.8	3.4	2.8	3.4
Services	5.7	4.3	2.1	3.5	2.4	2.8	2.5	2.5	3.6	3.2	3.6
Goods	3.4	5.5	6.5	8.2	4.2	3.1	4.6	10.8	3.1	2.5	3.1
Construction	-1.4	-2.3	0.9	5.9	-12.5	2.2	9.1	12.4	3.7	1.0	-0.5
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3.6	6.8	3.4	2.8	3.4
Services	NA	NA	NA	NA	NA	NA	3.6	5.4	4.1	3.8	3.9
Goods	NA	NA	NA	NA	NA	NA	2.5	10.7	3.9	1.2	3.2
Manufacturing	NA	NA	NA	NA	NA	NA	6.4	12.2	3.8	2.3	4.3
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	-4.2	7.8	4.0	-0.8	0.9
Consumption Expenditures	0.6	4.2	4.5	-2.1	4.4	3.0	4.7	4.8	4.7	4.3	2.7
Services	6.1	4.4	3.6	2.2	3.9	2.8	3.5	3.5	4.7	3.3	4.1
Goods	-4.5	4.0	5.4	-6.3	4.9	3.2	5.8	6.1	4.7	5.2	1.3
Plant and Equipment Expenditures	-5.0	4.3	17.6	12.1	5.8	15.9	-1.1	16.6	9.4	-3.9	2.3
Services Industries	-6.5	5.9	13.8	13.7	-0.8	21.1	0.3	13.6	10.4	2.8	3.0
Goods Industries	-2.8	2.0	23.2	9.9	15.2	8.7	-2.9	20.3	8.2	-12.0	1.2
Corporate Profits (%Ch Year-Over-Year)	2.2	2.7	8.0	4.9	11.1	10.9	27.0	22.0	-5.8	11.1	4.5
Service Industries	-3.7	-5.7	-11.0	-2.9	-1.7	2.6	31.7	18.7	-2.4	19.4	-6.0
Goods Industries	12.5	16.5	45.0	16.0	30.4	22.1	20.9	26.5	-10.3	-0.4	22.0

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Monthly Indicators)

	1988:4	1988:5	1988:6	1988:7	1988:8	1988:9	1983	1984	1985	1986	1987
Total Employment—											
Millions of Persons	105.3	105.5	106.1	106.3	106.5	106.7	90.2	94.5	97.5	99.5	102.3
Service Industries	79.8	80.0	80.5	80.6	80.8	81.1	66.9	69.8	72.7	75.0	77.5
Goods Industries	25.4	25.5	25.6	25.7	25.6	25.6	23.3	24.7	24.9	24.6	24.8
Total Compensation—											
Billions of Dollars	2394.0	2408.4	2427.5	2451.7	2459.4	NA	1676.6	1838.6	1974.9	2094.0	2248.4
Services	1708.9	1720.7	1733.1	1752.5	1759.7	NA	1153.6	1261.0	1365.7	1468.5	1598.6
Goods	685.1	687.7	694.4	699.2	699.7	NA	523.1	577.6	609.2	625.5	649.8
Consumer Price Index—All Urban, Percent Change, Year-Over-Year	3.9	3.9	4.0	4.1	4.0	4.2	3.2	4.3	3.5	1.9	3.7
Services	4.4	4.4	4.5	4.6	4.5	4.6	3.5	5.3	5.1	5.0	4.1
Goods	3.3	3.3	3.2	3.6	3.4	3.8	3.0	3.4	2.1	-1.0	3.2
Services Leading Indicator Index (%)[2]	0.4	-0.4	1.0	1.7	0.1	NA	4.5	2.3	3.5	4.0	3.0
Leading Economic Indicator Index—total (%)[2]	1.7	0.0	2.5	1.2	1.7	NA	15.3	3.6	3.1	6.5	5.3
Services Coincident Indicator Index (%)[2]	3.6	3.0	3.6	4.6	3.1	NA	3.3	3.7	3.8	3.1	3.5
Service Industries Stock Price Index	85.3	83.0	89.2	88.7	87.9	91.0	54.4	53.0	66.2	86.3	95.4
S&P 500 Stock Price Index	262.6	256.1	270.7	269.1	263.7	268.0	160.4	160.5	186.8	236.3	286.8

[1] *True Services Balance is the balance on Service exports and imports excluding exports and imports of investment income and government transactions.*

[2] *Growth rate expressed in six-month smoothed percent changes at annual rate, based on the ratio of the current month's index to the average for the preceding twelve months.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

THE SERVICE ECONOMY is a product of the CSI Task Force on Data Collection and Statistical Improvement. Comments or suggestions should be directed to Beth Bogie (American Express), Task Force Chairman, at 212/640-5166, or to Margaret Wigglesworth, Executive Director of CSI, at 202/467-3043.

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THE SERVICE ECONOMY

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SERVICES AND MANUFACTURING WORK HAND IN HAND*

James Brian Quinn and Penny C. Paquette

Many executives and policy makers discuss the manufacturing and services sectors of the economy either as if they were totally independent or as if services were inherently dependent on and inferior to manufacturing. The facts do not support such views. Services and manufacturing are mutually dependent and a healthy economy requires that both be efficient, innovative, and competitive in world markets. A balanced view of the economy today must start with a realization that many of the myths about services are unfounded -- services industries create value at rates as high as manufacturing, most service industries are capital intensive and have large scale competitors, and services substitute directly for manufactures in a wide variety of situations.[1] This article will detail some of the ways services and manufacturing are interdependent and why a recognition of that fact is vital for the future.

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* This article is based on a multi-year study of technology in services undertaken under the auspices of the National Academy of Engineering. The authors gratefully acknowledge the generosity of Bankers Trust, Bell & Howell, The Royal Bank of Canada, Braxton Associates, Bell Atlanticom, and American Express in providing financial support for this research. Fuller discussion of these same topics may be found in (1) J.B. Quinn, J.J. Baruch, and P.C. Paquette, "Exploiting the Manufacturing-Services Interface," *Sloan Management Review*, Summer 1988, and (2) J.B. Quinn, "Services Technology and Manufacturing: Cornerstones of the U.S. Economy," in B. Guile and J.B. Quinn (eds.), *Managing Innovation: Cases from the Services Industries*, National Academy Press, Washington, D.C., 1988.

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Although complete intersectoral sales figures are not available, it is clear that the customers for certain services, e.g., trucking and railroads, are primarily manufacturing and other goods-producing firms. In the same way, it is clear that the customers for certain manufactures, e.g., medical equipment and paving and road construction equipment, are primarily service providers. Service providers represent the majority of customers for the high technology telecommunications and information processing equipment manufacturing industries, as Stephen Roach's studies[2] indicate. This should not be surprising given that 72 percent of U.S. gross national product is made up by the services sector and such "information technologies" are needed in almost any business today. There are, of course, some manufacturers that supply goods only to other manufacturers and some service industries that specialize in serving other service providers.

While the argument has been made that certain service industries would wither away if U.S. manufacturing were not a strong and growing part of the economy, the reverse might also be said for certain manufacturers. And, it is important to recognize that many of the services which are perceived to be dependent on U.S. manufacturing strength would still be needed regardless of where the product was manufactured. Imported goods still need to be stored, advertised, transported, distributed, financed, and repaired.

For instance, the ability of airlines to provide fast, efficient, and reasonably priced air transportation is based on their own internal management systems, on the availability of competitively priced, innovative aircraft and related equipment, and on the public infrastructure of airports and air traffic control. In turn, the ability of airframe manufacturers to make competitively priced, innovative aircraft that meet the needs of airlines around the world is based on not only the availability of reasonably priced raw materials and efficient manufacturing technologies and management, but on a vast array of internally and externally supplied services. Suppliers and customers are inherently dependent on each other. Over time the balance of power between the two can shift, however, and many people have failed to recognize the impact technology, deregulation, and other factors have had on the balance of power between service providers as suppliers and customers and manufacturers as customers and suppliers.

- As the number of major airlines (service providers) declined through consolidation due to deregulation and the introduction of wide bodied jets, aircraft manufacturers had to modify their strategies. The number of U.S. lead customers for a firm like Boeing has shrunk to a handful of large "megacarriers," each with a more powerful bargaining position than before. The military no longer can provide the "first order" volumes necessary to launch a commercial aircraft. Consequently, to obtain essential economies of scale, yet satisfy each customer, companies like Boeing have invested heavily (over $800 million) in flexible automation, allowing them to modify their aircrafts' internal seating, baggage storage, maintenance system, and customer convenience patterns to suit virtually any requirement their major customers might conceive over the useful life of the aircraft. Boeing is even proposing to restructure its overall cabin configuration (in its 7J7 aircraft) in response to the recommendation of SAS's President J. Carlzon that airline seating patterns would be optimized if the cabin cross-section were a horizontal elipse rather than a circle or vertical elipse. The coming deregulation of Europe's airlines will only lead to further concentration in the world's airline industry.

- Even when buyers have not consolidated into large individual units, services technologies allow them to achieve similar bargaining power. For example, a team of airline and manufacturer-supplier experts, coordinated by the Air Transport Association, has created an automated parts procurement system (Spec 2000) that is expected to save millions of dollars and can be accessed using a personal computer. Spec 2000 is a computerized compendium of manufacturers' catalogs including more than a million part numbers and an automated computer-to-computer ordering system. Not only does the system allow an airline to get comparative specification and quotation data, but it also gives information about how vendors meet their delivery and performance criteria, thus increasing the information leverages of all potential purchasers.[3]

As service firms grow in sophistication, scale, innovativeness and scope, their leverage as suppliers to manufacturers increases. Deregulation has created more powerful transportation companies with handling capabilities that can increase shipping efficiencies enormously, and these companies have increased their bargaining power with shippers. Some companies have maintained private trucking fleets primarily to counterbalance that increased power.[4] And large money-center banks now have the information, instant capital access, and worldwide connections to manage a company's financial assets with a knowledge base and leverage few manufacturers can equal.

Within manufacturing, 75 percent of all costs and an even higher percentage of value added are due to service activities.[5] The major value added to a product is typically due less to its basic commodity value (e.g., producing the grain and vegetables in a processed food or the "body in white" for an automobile) than the styling features, perceived quality, subjective taste, and marketing presentation added by "service" activities inside or outside the company. Except in continuous process industries (like oil refining), planning, accounting, inventory, quality assurance, transportation, design, advertising, and distribution costs generally outweigh direct labor costs by factors of between three and ten to one. Therefore, many aspects of a manufacturer's cost competitiveness depend intimately on such service activities.

TABLE 1

U.S. vs. Japanese Productivity in Services*

	Japan		U.S.		Ratio: U.S. Output per Hour as a % of Japanese Output per Hour
	1970	1980	1970	1980	1980
Private Domestic Business	3.59	6.01	9.40	10.06	167%
Agriculture	1.37	2.38	16.53	18.36	771%
Selected Services					
Transp. & Comm.	3.86	5.66	9.29	13.14	232%
Elect., Gas, Water	14.01	19.74	21.98	25.38	129
Trade	2.88	4.53	6.88	7.92	175
Fin. & Insur.	6.69	12.03	8.21	8.20	68
Bus. Services	2.29	3.60	7.69	7.59	211
Manufacturing	3.91	8.00	7.92	10.17	127%

* Measured as output per hour in 1975 dollars.

Source: *Measuring Productivity: Trends and Comparisons from the First International Productivity Symposium*, Tokyo, Japan, 1983, UNIPUB, New York, 1984.

In most areas, the efficiency of U.S. service industries has been more than competitive with our international trading partners (see table above). In addition, because of the sophistication and economies of scale and scope that technology enables service companies to bring to bear, manufacturers have the option to purchase efficient, effective services rather than produce them in-house. The existence of a competitively provided external service function serves as a powerful motivator for internal service groups to innovate, control costs, and increase quality and as a benchmark for management decision making. With service enterprises growing rapidly in scale and technical sophistication, the opportunities are expanding for manufacturers to leverage their own internal innovation programs by exploiting those of service suppliers. As technology creates new capabilities, manufacturers need to constantly reassess when to produce their own services and when to buy them.

While cost is an important factor, it is in the area of adding value that service activities are the most critical. A less expensive but poorly conceived aircraft benefits neither the airframe manufacturer nor the airlines. Understanding what the customer needs and wants and designing such a product is the key to success. Properly managing market intelligence, research and development, product engineering, quality assurance, and other service functions can make the difference.

- For example, in the automobile industry, designing and introducing a new car line are major components of overhead costs and significant contributors to the value the customer perceives. At Ford this design cycle had taken five to six years and could cost several billion dollars. In 1980, Ford's CEO and president decided to undertake a new "simultaneous design" process for their new upper-middle line, which became the Taurus/Sable cars. To integrate design from research to marketing, they established a core group, called Team Taurus, that had a full-time representative from all of the critical groups with Ford -- product design, component engineering, manufacturing, sales, and corporate headquarters (virtually all service operations). Instead of moving the design step-by-step along these groups to the marketplace -- with numerous conflicts and design reworks -- Team Taurus involved everyone from the outset. The result was that the Taurus/Sable introduction cost some $250 million less than its budget and the cars were exceptionally successful in the marketplace. Future cars at Ford will probably be designed using the same process in only three to four years -- potentially saving Ford hundreds of millions of dollars more and ensuring that manufacturing design is much closer to the customer.

It is this need to get closer to the customer which ties many manufacturing firms to wholesalers and retailers of their products. Marketing strategists have documented that as personal affluence or the sheer size of markets grows, there is an increasing demand for differentiated, individualized, or customized products. The key to sales in such markets is the ability to produce the desired variety at reasonable costs and provide the fastest response time at lowest system costs. U.S.-based manufacturers that are able to link flexible production systems directly to their customers' market intelligence networks should have very real competitive advantages (in timing, inventory, and transportation costs) over foreign producers. This is clearly demonstrated by the resurgence of the U.S. textile and apparel manufacturing industries -- which is due in large part to "quick response" reordering systems and coalitions between textile mills, apparel manufacturers, and retail chains.

Thus the services and manufacturing sectors of the economy are intertwined to a great degree -- as customers and suppliers of each other and as critical inputs to each other's competitiveness (both from a cost standpoint and from the standpoint of value added, innovation, etc.). Global competition increases that interdependence. Improved telecommunications, air transport, and cargo-handling technologies have forced virtually all manufacturers (regardless of size) to consider their supply sources, markets, and competition on a worldwide scale -- or lose their competitive position. Many service firms also are being faced with increased competition both in the international arena and within the U.S., and must evaluate both customers and suppliers on a global basis.

Effective coordination of the international operations of large manufacturing enterprises -- and those of many much smaller companies -- now depends heavily on services technologies and efficiencies. Economies of scale in international operations today are often due more to the corporation's service capabilities -- i.e., technology transfer, marketing skills, financial services, logistics, etc. -- than its plant scale economies. A significant component of a multinational company's competitive edge comes from its capacity to handle cross-border data and services flows.[6] The availability of various parts, equipment, and equipment support on a worldwide basis is essential to the coordination and competitive position of multinational service providers (such as international airlines) as well. These natural connections between a country's manufacturers and service firms have led many U.S. manufacturers and service providers into the international market, but are a cause of concern as foreign-based manufacturers establish plants in the U.S.

Recognition that services and manufacturing work hand in hand is essential to national policy discussions. Attempting to strengthen one sector without strengthening the other would be a misguided policy, and spending time denigrating the service sector does manufacturers little good. Unfortunately, until now there has been a tendency to focus competitiveness policy discussions almost exclusively on manufacturing issues. As we have illustrated, effective service activities actually create new markets for manufactured goods, result in lower costs for manufacturers, and are central to increasing the value added by manufactured products. Similarly, manufacturers are important suppliers, customers, and innovation partners for service providers.

Not only are services and manufacturing mutually reinforcing, but the same policy approaches that stimulate or retard one sector will generally affect the other in similar ways. Critical factors affecting both include the high relative cost of U.S. capital, the skill and literacy levels of the work force, and the development and application of frontier technologies (particularly those related to communications, health care, information handling, and public transport).[7] From a corporate strategy viewpoint, it is important for executives to recognize the interdependence of services and manufacturing and actively strive to exploit the opportunities presented by a partnership approach to the services-manufacturing relationship.

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[1] J.B. Quinn, J.J. Baruch, and P.C. Paquette, "Technology in Services," *Scientific American*, December 1987, pp. 50-58.

[2] S. Roach, "Technology and the Service Sector: America's Hidden Competitive Challenge," in B. Guile, J.B. Quinn (eds.), *Technology in Services: Policies for Growth, Trade, and Employment*, National Academy Press, Washington, D.C., 1988.

[3] "Spec 2000 weds airline procurements systems with automatic technology," *Air Transport World*, January 1987, p. 66.

[4] J. Johnson and K. Schneider, "Private Trucking: A Dinosaur?" *Business Horizons*, January 1988, pp. 73-78.

[5] Office of the United States Trade Representative, U.S. Trade in Services, Washington, D.C., December 1983; T. Vollmann, "The Effect of Zero Inventories on Cost (Just in Time)," in *Cost Accounting for the '90s: The Challenge of Technological Change*, National Association of Accountants, Montvale, NJ, 1986.

[6] K. Sauvant, *International Transactions in Services: The Politics of Transborder Data Flows*, Westview Press, Boulder, Colorado, 1986.

[7] J.B. Quinn and T.L. Doorley, "Key Policy Issues Posed by Services," in B. Guile and J.B. Quinn (eds), *Technology in Services*, National Academy Press, Washington, D.C., 1988.

CSI

SERVICES ECONOMIC HIGHLIGHTS

Allen Sinai
Chief Economist, Boston Company Economic Advisors, Inc.

Services At a Glance

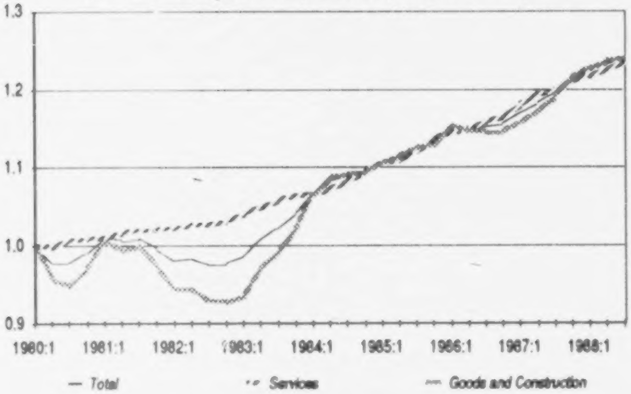
- ***Services GNP Measured by Expenditures***—or the service components of expenditures by consumers, businesses, government and the net service export balance—increased 3.6%, at an annual rate, in the third quarter of 1988. Goods and Construction GNP together increased 1.4%.
- The ***Service Sector Leading Index***, which leads the sector's activity by about six months, rose at an annual rate of 0.8% in November, while the Commerce Department's Index of Leading Indicators (LEI) grew 1.2%. The annual growth rate of the Coincident Index, reflecting current economic conditions for the Service Sector, was 3.1%.
- ***Employment*** growth in Service-Producing industries continued to be robust through November. An additional 3.023 million persons have joined the Services workforce in the last twelve months. For all of 1987, the increase was 2.5 million.
- ***Personal Consumption Expenditures*** on services increased at a substantial annual rate of 4.4% in the third quarter, following a 2.8% gain in the second quarter.
- ***Prices of Consumer Services*** were up 4.8% in November compared with the price level a year ago.
- ***Profits*** of Service-Producing industries rose 3.8% in the third quarter of 1988 over the third quarter of 1987.
- ***Plant and Equipment Expenditures*** by Service-Producing industries increased at an annual rate of 2.7% in the third quarter, down from a large 20% increase in the second.
- The ***Stock Price Index*** for Services declined 2.8% in November, following larger gains in September and October.
- ***Net Services Exports*** posted a surplus of $757 million in the third quarter of 1988, following a deficit of $837 million in the second quarter. The balance on true services trade was $2.4 billion.

Bottom Line: Service Sector economic growth picked up in the third quarter with continued strong employment gains. Growth rates in the Goods Sector continue at a moderate pace; much as in recent months.

The Service Economy refers to the total economy, in which the Service Sector is the dominant factor. The Service Sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

The Service Economy at a Glance

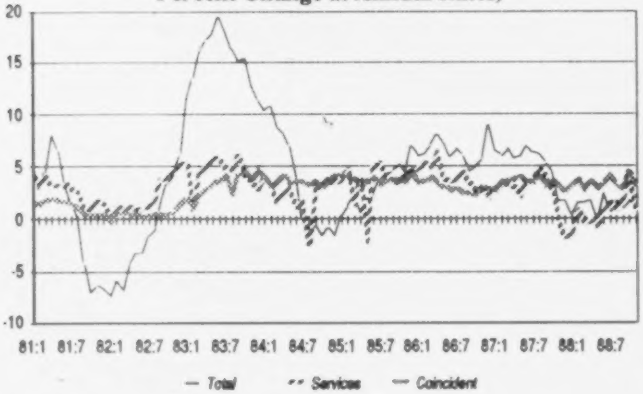
Chart 1
Real Gross National Product
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Expenditures GNP Up

Third quarter real Services GNP—measured by expenditures—increased at an annualized 3.6%, following a 2.8% growth rate in the second quarter. The Goods component—including Construction—increased 1.4%, slower than the 3.1% posted in the second quarter. Goods less Construction GNP increased 1.5%. Total GNP increased 2.4% in the third quarter, after a 2.9% growth in the second.

Chart 2
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed Percent Change at Annual Rates)

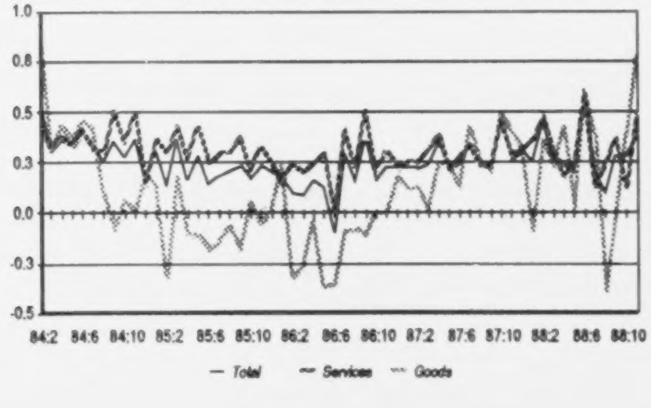


Small Gains in Services Leading Index

The Leading Index for the Service Sector increased 0.8% in November, following a large 3.4% rise in October. The increase in the Coincident Index for Services slowed to 3.1%, following a large 4.6% rise in October. The Leading Indicator Index for the total economy rose 1.2% in November and 1.7% in October.

The Service Sector Indices are produced by the Center for International Business Cycle Research, Columbia University.

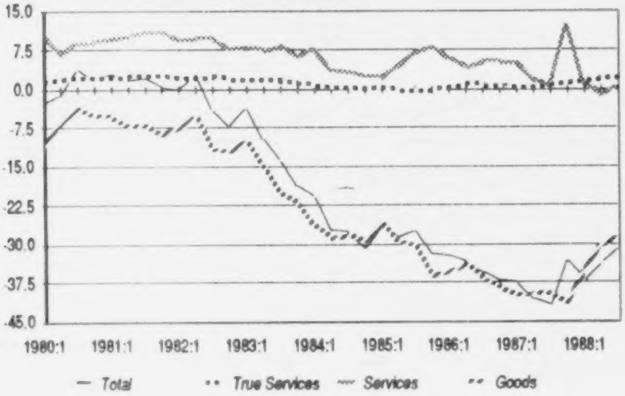
Chart 3
Employment Growth
(Total and by Sector, Monthly Percent Change)



Service Sector Employment Up

Service Sector employment gains continue to be strong. In November, Service Sector employment increased 344,000 persons, while over the last twelve months the increase was over 3 million persons. Gains in the Goods Sector are steady but slower. In November the increase was 119,000, while the twelve-month gain was 737,000.

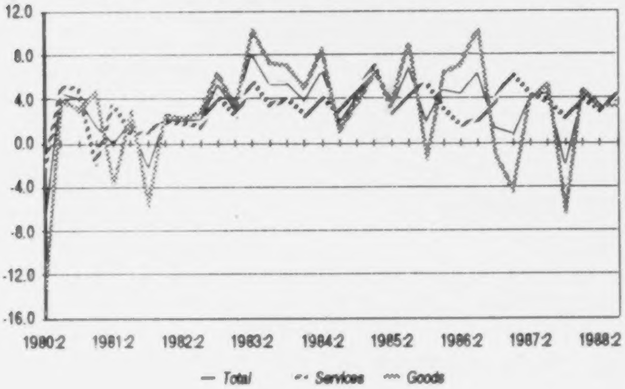
Chart 4
Current Account Balance and Components
(Billions of Dollars)



Service Balance Back in the Black; Trade in Services in Surplus

The total Services trade balance showed a small surplus again, following a small deficit in the second quarter. The surplus on the true service balance continues to be strong at $2.4 billion, following a downward revised $2.3 billion in the second quarter. The merchandise trade deficit improved to $28.5 billion, from $30.2 billion in the second quarter.

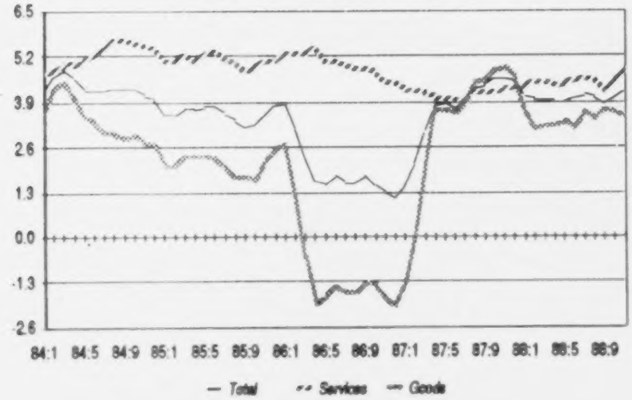
Chart 5
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Up 4.4%

In the third quarter of 1988, personal consumption expenditures on Services increased at an inflation-adjusted 4.4% annual rate, while personal expenditures on Goods increased 3.3%. In the second quarter, consumption expenditures on Services were up 2.8%, and on Goods, a revised 3.2%.

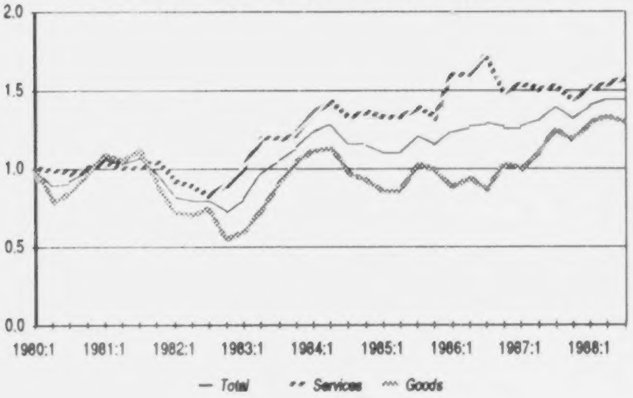
Chart 6
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Moves Higher

The year-over-year price increase in the Service component of the Consumer Price Index (CPI-U) for November accelerated to a 4.8% rate from a year-over-year 4.2% increase in September. The year-over-year increase in the Goods component of the CPI-U slowed to 3.5%, from 3.7% in September. The overall CPI-U increased 4.2% in November, following a year-over-year increase of 4% in October.

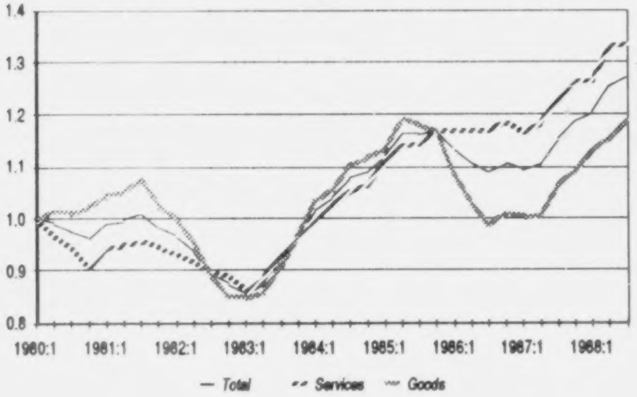
Chart 7
Corporate Profits for Domestic Industries
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Sector Profits Rise

In the second and third quarters of 1988, profits of Service-Producing industries increased 2.6% and 3.8%, respectively, following year-over-year declines in the previous five quarters. Profits of Goods-Producing industries rose 4.1%, compared to a year ago, following a 22.1% increase in the second quarter.

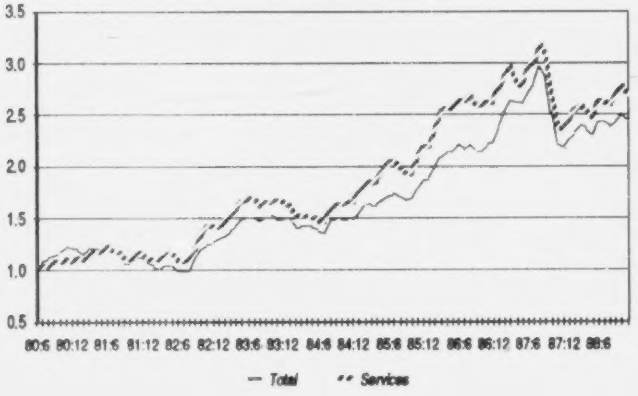
Chart 8
Real Expenditures on Plant and Equipment
(Total and by Sector, Indices, 1980:1 = 1.0)



Services Investment Falters

Service industries increased real expenditures on plant and equipment (P&E) by 2.7%, at an annual rate, in the third quarter, following a large 20%, in the second quarter. Goods industries increased capital outlays 13.4%, following a revised 7.7% in the second quarter. Overall spending on P&E increased 7.1% in the third quarter, following a 14.8% increase in the second.

Chart 9
S&P 500 and Services Stock Price Indices
(1980:6 = 1.0)



Stock Prices Lower

The Services Stock Price Index and S&P 500 declined in November, 2.8% and 2.3%, respectively, reversing almost all of the October gains. Both indices are now only marginally higher than September levels. The Services Stock Price Index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

FOREIGN DIRECT INVESTMENT IN U.S. SERVICE INDUSTRIES: NEW TRENDS EMERGING

Allen Sinai and Zaharo Sofianou

At the end of 1987 foreign investors owned a total of $261.9 billion of direct investments in the United States. Of that, about 48% was in Non-Goods producing industries (i.e., Service Industries-including Real Estate) and 52% was in Goods-Producing industries (i.e. Manufacturing, Petroleum and Mining).

The overall split of outstanding foreign direct investment between Goods and Non-Goods producing industries has been roughly equal for some time now. However, there has been a change within the two broad categories. Within Services, foreign investnent has been increasing in industries such as Professional and Business Services and in Hotels -- areas traditionally not associated with foreign direct investment. Similarly, recent foreign direct investment in the Goods-Producing Industries concentrated in the Chemicals and Processed Food industries with slower investments in Primary and Fabricated Metals and Machinery.

Foreign Direct Investment in Service Industries is Currently Concentrated in Wholesale and Finance -- Europeans Lead in Overall Investment

Traditionally, foreign direct investment in Service Industries was concentrated in Wholesale and Retail Trade as well as in Banking, Insurance and Finance. Of total outstanding foreign direct investment in Service Industries, the largest by far is in *Wholesale Trade*. This area accounts for $37.6 billion, or 30% of total foreign investments in Service Industries.

Japan owns $14.7 billion of the total foreign assets in Wholesale Trade, mostly in Motor Vehicles and Parts in order to facilitate the distribution and sale of Japanese car imports. European investments in Wholesale Trade industries stand at $18.3 billion, including $7 billion belonging to the United Kingdom and $5 billion to Germany. Canada's investments in Wholesale Trade Industries amount to $2.4 billion.

While foreign direct investment is greatest in the Wholesale Trade Industry and has grown $16.5 billion over the past five years, the rate of growth of additional investments has recently slowed. In 1987 the increase in foreign direct investments in Wholesale Trade was $3.6 billion, down from $4.9 billion in 1986 and $4.5 billion in 1985.

Foreign Investments in *Real Estate* -- (included in the Service Industries since it produces intangible goods) stands at $24.5 billion, up $10 billion from 1983. Europe owns $10.7 billion, of which $5.5 billion belongs to the United Kingdom and $3.3 billion to the Netherlands. Japan owns $4.4 billion, while countries in Latin America own $4.2 billion, including $3.3 billion by the Netherlands Antilles. Foreign investments in Real Estate are popular largely because of the small price fluctuations and the fact that values tend to appreciate -- both of which offer security to new investors.

Investment in the *Insurance Industry* totals close to $16 billion, almost double its level five years ago. Life insurance accounts for the largest part of this figure, ($9.4 billion). Most of the growth of investments in the Insurance Industry took place in 1985 and 1986, with only marginal growth in 1987. Nearly all of the Insurance Investments ($13.1 billion) are owned by European countries, including $6 billion by the United Kingdom. While Japan's proportion is undisclosed, the amount must be very small -- about $200 million.

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Table 1
Foreign Direct Investment Position in the U.S.
(Billions of Dollars, 1987)

		Goods					Non-Goods							
	All Industries	Total	Mining	Petroleum	Manufacturing	Chemicals	Total	Wholesale Trade	Retail Trade	Banking	Other Finance	Insurance	Real Estate	Other*
All Countries	261.9	132.0	5.6	35.4	91.0	30.4	129.9	37.6	9.5	13.8	8.0	16.0	24.5	20.5
Canada	21.7	9.7	0.8	1.4	7.5	0.4	12.0	2.4	1.2	1.4	0.5	1.6	3.4	1.6
Europe	178.0	105.0	1.6	32.8	70.6	27.6	73.0	18.4	7.2	6.3	5.9	13.1	10.7	11.3
Germany	19.6	9.3	0.3	0.0	9.0	4.7	10.3	5.0	1.0	0.4	0.6	1.6	1.1	0.6
Netherlands	47.0	16.5	0.3	NA	16.1	6.0	15.5	2.2	1.8	2.5	2.6	3.1	3.3	NA
United Kingdom	74.9	23.9	0.4	NA	23.5	9.1	31.6	7.0	3.9	1.9	NA	6.1	5.5	7.3
Japan	33.4	5.3	NA	0.0	5.2	0.5	27.8	14.7	0.3	3.4	2.6	NA	4.4	2.4
Australia, New Zealand, South Africa	6.6	3.2	NA	0.1	3.1	0.0	1.1	0.2	0.1	0.0	0.1	NA	0.3	0.4
Latin America	15.3	5.1	0.7	0.7	3.7	1.7	10.2	1.7	0.7	1.8	-1.2	1.1	4.2	1.9
Netherlands Antilles	8.9	2.6	0.0	0.3	2.3	1.4	6.2	0.6	0.5	NA	0.3	NA	3.3	1.5
Middle East	5.1	0.3	0.0	NA	0.3	0.0	1.7	0.1	0.0	0.6	0.2	0.0	0.9	NA
Addendum: OPEC	5.0	0.2	0.0	NA	0.2	0.0	1.4	0.1	0.0	0.4	0.0	0.0	0.8	NA

** Includes Agriculture, Forestry and Fishing*

NA= Not available, to avoid disclosure of data on individual companies.

Sources: The Boston Company Economic Advisors, Inc., and U.S. Commerce Department.

Foreign direct investment in U.S. *Banks* stands at $13.85 billion, up from $8.7 billion in 1983. Europe owns $6.3 billion with $2.5 billion belonging to the Netherlands and $1.9 billion to the United Kingdom. Japan and Canada own $3.4 billion and $1.4 billion, respectively. Total foreign direct investment in *Nonbank Financial Institutions* stands at $8 billion. European assets are $5.9 billion, while Japanese assets are $2.6 billion.

Investments in *Retail Trade*, which includes Restaurants, stands at $9.6 billion, up $4.1 billion from 1983. The largest investor is the United Kingdom, with $3.9 billion out of a total European ownership of $7.2 billion. Canada owns $1.1 billion, and Japan $300 million.

New Trends: In Which Service Industries is Foreign Direct Investment Growing Fastest?

The fastest rate of growth in foreign direct investment in 1987 has been in an area labelled "Other," which includes Service Industries like Transportation, Communication, Public Utilities, Hotels, Business Services such as Advertising, Management Consulting, Employment Agencies, Motion Picture Services, Accounting, Auditing, Health and Legal and Educational Services. The "Other" category also includes non-service industries such as Agriculture, Forestry and Fishing.

Excluding Agriculture, Forestry and Fishing, foreign direct investment in the remaining "Other" categories grew $6.32 billion in 1987 -- mostly in Business Services and Hotels. While foreign investments in these industries has been the highest in terms of absolute dollar amounts, the rate of growth has also been high over the past five years. Since 1983 investments in "Other" Service Industries increased fourfold, to stand at $15.34 billion in 1987, up from $3.65 billion in 1983. The rate of growth of foreign direct investments in Hotels and Business Services was even higher in 1987. The outstanding foreign investments in these industries doubled, while it is now six times higher than it was in 1983.

Table 2
Foreign Direct Investment in Services Industries
(Billions of Dollars)

	1983	1986	1987	Change (1983 to 1987)	Change (1986 to 1987)
Total Services	64.43	109.43	124.72	60.29	15.30
Wholesale Trade	21.03	34.00	37.58	16.55	3.58
Motor Vehicles and Equipment	7.05	12.35	12.96	5.91	0.61
Metals and Minerals, Except Petroleum	3.35	3.58	3.17	-0.18	-0.42
Electrical Goods	2.11	4.24	4.52	2.42	0.28
Machinery, Equipment, and Supplies	2.70	3.71	4.59	1.89	0.87
Groceries and Related Products	1.05	2.19	2.57	1.52	0.38
Retail Trade	5.48	8.92	9.55	4.06	0.62
Food Stores, and Eating & Drinking Places	2.11	3.62	3.91	1.81	0.29
Other	3.38	5.30	5.64	2.26	0.33
Banking	8.70	12.39	13.85	5.15	1.45
Finance, Except Banking	2.27	7.24	7.98	5.71	0.74
Insurance	8.67	15.35	15.95	7.29	0.61
Life Insurance	4.01	9.36	9.22	5.21	-0.14
Other	4.66	5.98	6.73	2.07	0.75
Real Estate	14.64	22.51	24.48	9.84	1.97
Other Service Industries	3.65	9.02	15.34	11.68	6.32
Transportation	1.26	1.80	2.36	1.11	0.56
Hotels and Other Lodging Places	0.52	1.08	3.18	2.66	2.10
Business Services	0.83	2.59	4.91	4.08	2.32
Other Services *	0.51	1.80	3.03	2.52	1.22
Services	2.08	6.72	12.40	10.31	5.67

* *Includes accounting, auditing, bookkeeping health, legal, and educational services.*

Source: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Why the Change in Trends?

While one can only speculate as to the change in preferences of foreign direct investors in the United States, it is safe to say that the shift from investing more in "traditional Service Industries" to "non-traditional Service Industries (traditional and non-traditional only as far as direct investment is concerned) is most likely due to higher profitability in those industries. Investments in Hotels, for example, are considered to be safe — based on the same principle as investments in Real Estate.

Business Services, however, are often smaller concerns and although they can be very profitable, they may have a higher risk attached. Nevertheless, the most likely explanation is that foreign investors are now becoming more familiar with a greater number of smaller U.S. industries and companies — having first invested in the larger and more well known industries — and feel confident enough to invest in previously unfamiliar areas. The high growth of foreign direct investment in "non-traditional" Service Industries — particularly the Business Services — will probably continue since there are still areas that are being "discovered" by foreign investors.

Table 1
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1987:2	1987:3	1987:4	1988:1	1988:2	1988:3	1983	1984	1985	1986	1987
Gross National Product	3823.0	3865.3	3923.0	3956.1	3985.2	4009.4	3279.1	3501.4	3618.7	3721.7	3847.0
Services	1797.2	1806.6	1822.3	1833.4	1846.1	1862.8	1585.5	1625.2	1684.4	1738.1	1801.1
Goods and Construction	2025.8	2058.6	2100.6	2122.7	2139.1	2146.7	1693.6	1876.3	1934.5	1983.7	2045.9
Construction	380.2	381.1	386.7	374.6	376.7	377.7	326.6	367.1	380.8	384.7	382.6
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3279.1	3501.4	3618.7	3721.7	3847.0
Services	NA	NA	NA	NA	NA	NA	2192.8	2312.0	2407.8	2498.9	2595.4
Goods	NA	NA	NA	NA	NA	NA	1022.7	1132.3	1176.1	1190.6	1228.9
Manufacturing	NA	NA	NA	NA	NA	NA	675.5	757.9	786.8	804.6	839.5
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	327.2	374.4	389.3	386.0	389.4
Consumption Expenditures	2516.6	2545.2	2531.7	2559.8	2579.0	2603.8	2146.0	2249.3	2354.8	2455.2	2520.9
Services	1235.5	1246.8	1253.6	1265.9	1274.8	1288.9	1062.7	1100.3	1152.3	1190.7	1239.5
Goods	1281.1	1298.4	1278.1	1293.8	1304.2	1314.9	1083.3	1149.0	1202.5	1264.5	1281.5
Plant and Equipment Expenditures	374.7	391.2	403.1	408.9	424.1	431.6	307.0	358.0	391.6	376.3	384.9
Services Industries	221.4	229.0	236.9	236.4	248.2	249.9	170.4	193.6	213.7	219.7	226.3
Goods Industries	153.3	162.2	166.2	172.5	175.8	181.7	136.6	164.4	177.9	156.6	158.6
Corporate Profits—Billions of Dollars	219.2	234.6	222.2	236.6	243.1	243.8	166.6	203.2	191.4	212.8	222.3
Service Industries	125.4	127.6	120.5	126.0	128.6	132.4	96.4	114.5	111.8	133.4	125.4
Goods Industries	93.8	107.0	101.7	110.6	114.5	111.4	70.2	88.8	79.7	79.4	96.8
Current Account Balance—Quarterly rates	-40.9	-42.0	-33.5	-36.9	-33.7	-30.9	-46.3	-107.1	-115.1	-138.8	-154.0
Services Balance	1.8	0.7	12.0	1.4	-0.8	0.8	30.3	17.5	22.1	21.0	19.8
True Services Balance*	0.6	0.8	1.2	1.6	2.3	2.4	6.6	2.0	0.4	3.3	3.1
Merchandise Trade Balance	-39.6	-39.7	-41.2	-35.2	-30.2	-28.5	-67.1	-112.5	-122.1	-144.5	-160.3

* *True Services Balance is the balance on Service exports and imports excluding receipts and payments on investments and government transactions.*

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1987:2	1987:3	1987:4	1988:1	1988:2	1988:3	1983	1984	1985	1986	1987
Gross National Product	4.9	4.4	6.0	3.4	2.9	2.4	3.6	6.8	3.4	2.8	3.4
Services	4.3	2.1	3.5	2.4	2.8	3.6	2.5	2.5	3.6	3.2	3.6
Goods and Construction	5.5	6.5	8.2	4.2	3.1	1.4	4.6	10.8	3.1	2.5	3.1
Construction	-2.3	0.9	5.9	-12.5	2.2	1.1	9.1	12.4	3.7	1.0	-0.5
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3.6	6.8	3.4	2.8	3.4
Services	NA	NA	NA	NA	NA	NA	3.6	5.4	4.1	3.8	3.9
Goods	NA	NA	NA	NA	NA	NA	2.5	10.7	3.9	1.2	3.2
Manufacturing	NA	NA	NA	NA	NA	NA	6.4	12.2	3.8	2.3	4.3
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	-4.2	7.8	4.0	-0.8	0.9
Consumption Expenditures	4.2	4.5	-2.1	4.4	3.0	3.8	4.7	4.8	4.7	4.3	2.7
Services	4.4	3.6	2.2	3.9	2.8	4.4	3.5	3.5	4.7	3.3	4.1
Goods	4.0	5.4	-6.3	4.9	3.2	3.3	5.8	6.1	4.7	5.2	1.3
Plant and Equipment Expenditures	4.3	17.6	12.1	5.8	14.8	7.1	-1.1	16.6	9.4	-3.9	2.3
Services Industries	5.9	13.8	13.7	-0.8	20.0	2.7	0.3	13.6	10.4	2.8	3.0
Goods Industries	2.0	23.2	9.9	15.2	7.7	13.4	-2.9	20.3	8.2	-12.0	1.2
Corporate Profits (%Ch Year-Over-Year)	2.7	8.0	4.9	11.1	10.9	3.9	27.0	22.0	-5.8	11.1	4.5
Service Industries	-5.7	-11.0	-2.9	-1.7	2.6	3.8	31.7	18.7	-2.4	19.4	-6.0
Goods Industries	16.5	45.0	16.0	30.4	22.1	4.1	20.9	26.5	-10.3	-0.4	22.0

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Monthly Indicators)

	1988:6	1988:7	1988:8	1988:9	1988:10	1988:11	1983	1984	1985	1986	1987
Total Employment— Millions of Persons	106.1	106.3	106.4	106.7	107.0	107.4	90.2	94.5	97.5	99.5	102.3
Service Industries	80.5	80.6	80.8	81.1	81.2	81.6	66.9	69.8	72.7	75.0	77.5
Goods Industries	25.6	25.7	25.6	25.6	25.7	25.9	23.3	24.7	24.9	24.6	24.8
Total Compensation— Billions of Dollars	2427.5	2451.7	2459.1	2475.0	2511.6	2520.4	2520.4	1838.6	1974.9	2094.0	2248.4
Services	1733.1	1752.5	1758.9	1770.6	1794.6	1804.3	1153.6	1261.0	1365.7	1468.5	1598.6
Goods	694.4	699.2	700.2	704.4	717.0	716.1	716.1	577.6	609.2	625.5	649.8
Consumer Price Index— All Urban, Percent Change, Year-Over-Year	4.0	4.1	4.0	3.8	4.0	4.2	3.2	4.3	3.5	1.9	3.7
Services	4.5	4.6	4.5	4.2	4.5	4.8	3.5	5.3	5.1	5.0	4.1
Goods	3.2	3.6	3.4	3.7	3.6	3.5	3.0	3.4	2.1	-1.0	3.2
Services Leading Indicator Index (%)*	0.8	1.6	0.9	2.0	3.4	0.8	4.5	2.3	3.5	4.0	3.0
Leading Economic Indicator Index—total (%)*	2.4	0.6	1.7	1.0	1.7	1.2	15.3	3.6	3.1	6.5	5.3
Services Coincident Indicator Index (%)*	3.5	4.2	3.2	2.9	4.6	3.1	3.3	3.7	3.8	3.1	3.5
Service Industries Stock Price Index	89.2	88.7	87.9	91.0	94.3	91.7	54.4	53.0	66.2	86.3	95.4
S&P 500 Stock Price Index	270.7	269.1	263.7	268.0	277.4	271.0	160.4	160.5	186.8	236.3	286.8

* *Growth Rate expressed in six-month smoothed percent changes at annual rate.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

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THE SERVICE ECONOMY

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THE DEVELOPMENT OF A MONTHLY SERVICE OUTPUT INDEX

Zoltan E. Kenessey

Business analysts and policy makers alike often supplement annual and quarterly evaluations of economic performance with data from various monthly indicators of employment, trade and prices. For many years the industrial production index (IP) developed by the Federal Reserve has been widely used to follow the monthly change in output of the industrial sector of the economy. This attention to the industrial sector reflects the importance of manufacturing in the swings of the business cycle. Today, however, the overwhelming majority of the labor force and capital stock in the United States are utilized in the service sector, and movements in monthly services output provide important evidence of current changes in the nation's business conditions. In our rapidly changing business environment, the evolving services production index (SP) will supplement the tools of monthly analysis for service industries, just as for manufacturing widespread use is made of the monthly industrial production indexes.

The Present Form of the Index

Preliminary studies begun in the early 1980's indicated that the method applied to the industrial index might be successfully utilized to construct services indexes, and in 1987 development of monthly output indexes for the services producing sectors (SP) of the U.S. economy got underway.

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Similar to IP, the measure of service activities for each month is presented in index form. At present, SP aims at measuring the quantity changes in the monthly output of total services produced in the U.S. as a percentage of production in the 1977 reference period (1977=100); later this year the reference period will be changed to 1987.

Services are defined as all activity other than the production of goods in establishments belonging to Agriculture, Mining, Construction, and Manufacturing. The system of classification used for SP is based on the Standard Industrial Classification of 1977 (SIC), and service sectors are defined in terms of alphabetically coded Divisions in the following way:

Sector categories SERVICE INDUSTRIES	SIC categories	
Tertiary	**Division E**	**Transportation, communication, electric, gas, and sanitary services**
	Division F	**Wholesale Trade**
	Division G	**Retail Trade**
Quaternary	**Division H**	**Finance, insurance and real estate**
	Division I	**Services**
	Division J	**Public Administration**

In addition to the total index for all services, the six service industries shown above (SIC Divisions E through J) are grouped into the tertiary sector (transportation, wholesale trade and retail trade) and the quaternary sector (finance, insurance, real estate; services and government). Finally, a separate index for private services includes all services (SIC Division E-I) with the exception of government (SIC Division J).

The first estimate of SP for each month is developed by the end of the following month. Similar to IP, the first estimate is subject to revisions in each of the next three months as further information becomes available. After the fourth month, in principle, the indexes are not further revised until the time of an annual revision. In practice, however, owing to the experimental nature of the measure, SP indexes have been somewhat modified between annual revisions as well.

Experimental Results

In the 1977-1988 period the output of all services was estimated to grow considerably faster than the output of goods. Within services, the increases for tertiary and quaternary services were about the same during the period as a whole. However, the earlier part of the period has seen slower growth in the tertiary sector than in the quaternary, while after 1982 relative growth rates were the other way around for these two main service areas. Within total services SIC Division "services" which includes personal, business, health, educational, legal, social and other services, was estimated to have by far the highest growth in the 1977-1988 period. The slowest growth, about 1 percent per annum, was observed for government.

According to the experimental indexes, in general the magnitude of the service output downturns during the cyclical declines in both 1980 and in 1981-1982 were less pronounced and shorter lived than the contractions observed for goods. This is in line with expectations, as is the fact that the cycle of the tertiary index is larger than that of the quaternary index. Within the service sectors, the decline in retail trade was the most pronounced in both recessions. Among service industries, the declines in finance, insurance, and real estate were above average in both the 1980 and 1981-1982 recessions.

The length of the downturn for service output was shorter than for goods in both recessions (two months less in 1980, and six months less in 1981-1982), on the basis of the experimental indexes.

Turning to recent output developments, in 1986 gains in service output were rapid compared to goods. By contrast, in 1987 services output increased slower than the production of goods. These SP estimates perhaps suggest that during those two years rolling adjustments occurred, first affecting goods, and thereafter, services. In the last few quarters, the weakness observed in finance, insurance, and real estate in 1987 was noteworthy. (In SP the softness in this sector was noticeable already before the October 1987 stock market crash).

Future Work

The main evidence demonstrated by these first experimental results is the technical feasibility of applying the methodology, originally developed for industrial production, to the monthly measurement of service output. Work on the index suggests that frequently heard doubts about measuring service production are not warranted. The very size and diversity of the service sector make output measurement a complex task, but by no means an impossible one. Both the goods and service sectors contain unique activities that defy easy quantification. But the bulk of economic activity in most divisions of the SIC is comprised of mass produced or well standardized goods or services. The bulk of legal work, after all, is not in leveraged buyouts, but in real estate closings, divorces, wills, and criminal litigations, which differ from case to case, but can be defined as items of output fairly closely. The same is true for large segments of medical services, banking, and several other service industries.

Needless to say, even under the most favorable circumstances, the development of high quality monthly output measures for the service sectors will take several years. The need for some years of developmental work is suggested by the experience with the IP index, which dates from 1919. By contrast, the monthly estimating of service output began in 1987, and at the present, services indexes are in a stage of development comparable to the IP during the prewar era. Owing to their experimental character, SP estimates are only circulated to elicit comments.

Expansion of basic service sector statistics at the Bureau of the Census, the Bureau of Labor Statistics, and at the Bureau of Economic Analysis are making prospects for a greatly improved system of indicators brighter. These statistical improvements are crucial to monthly services output measurement, and if service industries are to achieve comparable coverage to that which already exists for goods, further expansion of these programs is indispensable.

METHODOLOGY OF THE SERVICES INDEX

The basic methodology of the service index and its overall design follow the IP system as closely as possible, providing comparability between the two indexes. Like IP, SP is a monthly quantity measure of the changes in service output, the movement of which is estimated without regard to month-to-month price changes. The basic component indicators are output series measured in physical units, or indirect (proxy) measures estimated on the basis of input indicators in physical unit measures, such as production worker hours. In this way, SP offers an assessment of service output not dependent on monthly price observations, and avoids use of monthly price deflators. Proxy measures are converted to estimates of monthly output through the use of production factor coefficients (PFCs), which are developed in connection with benchmark revisions of the IP, carried out at quinquennial or longer intervals. Both indexes use value added weights to combine the individual component indicators, or series, into aggregate indexes. Finally, SP uses a monthly estimating process relating input/output measures and benchmarking techniques which have evolved over decades of calculating the IP.

The Basic Indicators for SP

The indicators of service output are constructed from monthly data series of four main types: (a) directly measured indicators of output available in physical units of measurement, (e.g., number of loans processed or number of checks deposited); (b) production worker hours in industries, (or sometimes other labor data such as employment); (c) output indicators from IP (such as utility output); and (d) depreciation indicators by industry, which are based on the amortization of the capital stock in each industry. Currently there are 51 basic indicators in the SP system, although it is hoped that 30 new series will be added in 1989. Even with the new additions, however, SP will consist of 80 series compared with the 252 series in IP.

Benchmarking

In addition to providing new base period weights, benchmark revisions involve two interrelated major tasks : 1) output levels shown by the index are corrected to reflect more comprehensive information unavailable at the time the monthly estimates were developed, such as data collected during quinquennial census returns; and 2) PFCs used in the estimating process are updated. Thus, the benchmark revisions exercise not only an impact on the appreciation of the past behavior of output movements, but also on the ongoing monthly estimating work of IP or SP.

In the case of the industrial production index, Censuses of Manufactures and Minerals and the Census Benchmark Indexes based on them have a considerable history and provide a wide array of longer -term information. While the Census Bureau has made progress on services data collection, coverage is typically less elaborate for services than for manufacturing, and Census Benchmark Indexes for services have not yet been developed. As a result, in the first phase of work through 1986 SP was benchmarked to the constant dollar annual output levels shown in the Gross Product Originating by Industry (GPO) aggregates of the National Income and Product Accounts.

Difficulties resulted from the forced agreement between GPO and SP, and as additional services data is now available from Census and BLS for the period following 1986, a revision process will culminate in the development of Version 2.0 of SP using as many BLS output indexes as possible, various service Census results and GPO, as well as other sources.

Services and the Omnibus Trade and Competitiveness Act

Charles P. Heeter, Jr.

In signing the Omnibus Trade and Competitiveness Act into law at Long Beach Harbor last August, President Reagan spoke almost routinely about "the freedom to exchange goods, services and ideas in the world market." For service industries, the very routine of the words marked a certain coming of age in U.S. commercial policy. Only a few short years ago Presidential addresses on international trade rarely mentioned services, and when they did it was usually an afterthought. Today, services are widely recognized as a significant segment of U.S. commerce that should be advanced and defended just like U.S. merchandise trade.

Nowhere is this coming of age more evident than in a close reading of the Omnibus Trade and Competitiveness Act. Service industries worked hard for the bill's enactment, and their interests, just as those of manufacturers and farmers, are woven through the fabric of the new law's many provisions. Thus culminates a 15-year effort that began with the addition of "services" to the definitions of international trade and commerce in the 1974 Trade Act, and saw this small opening grow with successive trade law reforms in 1979, 1984 and 1988.

Trade Negotiating Authority

Service providers have long advocated comprehensive international rules to promote freer trade and investment in services, much like the rules of the General Agreement on Tariffs and Trade that guide merchandise trade. The United States government has identified services as a top priority of the GATT Uruguay Round of multilateral trade negotiations, which were launched in 1986 and are scheduled to end in 1990. The President's negotiating authority lapsed in January 1988, however, and along with it the fast-track Congressional procedure for approving and implementing trade agreements.

The Omnibus Trade and Competitiveness Act extends the President's negotiating authority until May 31, 1993. In so doing, it provides specific guidance to the President on negotiating objectives, including a renewal of the 1984 Trade and Tariff Act's call for internationally agreed rules on trade in services for the reduction or elimination of services trade barriers. The Act also guarantees until May 31, 1991 that the resulting agreements and related implementing legislation will be considered by Congress under the fast-track procedure. This assurance, which may be extended for an additional two years, requires Congress to vote on the agreement and implementing legislation without amendment and within strict time limits, provided that the President first consults with Congress.

Together, these provisions assure foreign governments that the United States is serious about reaching trade liberalizing agreements and that once agreement is reached with the Administration, policy will not have to be renegotiated with the Congress. These assurances are especially critical as the Uruguay Round enters its final phases.

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Foreign Market Access and Unfair Trade Practices

In the absence of international rules, the United States has had to approach services market access and unfair trade issues on a country-by-country, case-by-case basis. An important tool in this process is Section 301 which permits the private sector to petition the U.S. government to investigate foreign trade practices and to retaliate against them if bilateral consultations and negotiations fail to resolve the issues. Since 1975, Section 301 has been used to address 11 cases involving service industries, including air courier services, broadcast advertising, construction and engineering services, film distribution, insurance and shipping services.

Services associated with international trade were first included in the 1974 Trade Act under the original Section 301. This coverage was expanded in the 1979 Trade Agreements Act and again in the 1984 Trade and Tariff Act. The 1988 Omnibus Trade and Competitiveness Act does not substantially alter the specific 301 language on services, but it makes a variety of statutory changes that affect service industries, manufacturers and agricultural interests alike. The new law transfers 301 decision-making authority from the President to the U.S. Trade Representative (USTR), shortens the time limits for conducting investigations and consultations, and makes retaliation mandatory when no satisfactory resolution is achieved in cases involving violations of U.S. international legal rights. The net effect of these changes is to give the USTR more negotiating leverage in specific bilateral disputes and to introduce more accountability into the 301 process. In addition, the Act establishes a new Super 301 procedure, which requires the USTR to identify priority unfair practices in priority countries and launch investigations of them in 1989 and 1990, with the specific objective of eliminating all such practices over a three-year period.

Clearly, the revised Section 301 is a more powerful tool for removing specific foreign market barriers, and it backs up U.S. negotiators in the Uruguay Round by indicating that the United States is willing to act on its own if multilateral rules cannot be reached. But these potential benefits come with the risk of additional confrontation and retaliation in services trade if the United States is perceived abroad as too heavy handed.

Services Trade Data

The inadequacy of Federal government data on the service sector of the economy has long been a constraint on effective policymaking. The 1984 Trade and Tariff Act began to address this problem by creating a Service Industries Development Program within the U.S. Department of Commerce and expanding the International Investment Survey Act to include benchmark and periodic surveys of international service transactions.

The 1988 Omnibus Trade and Competitiveness Act builds on data collection and dissemination programs currently in place by establishing a new National Trade Data Bank in the Commerce Department, consisting of an international economic data system for policymakers and an export promotion data system for business users. The Data Bank's function is to pull together existing government data and provide easy access to it for government officials and the private sector. Importantly, the Act requires that the Data Bank contain information on service sector economic activities that is "as complete and timely as information on economic activity in the merchandise sector."

In addition, the Secretary of Commerce is directed to report comprehensive information on the service sector at least annually and to develop an index of leading economic indicators that includes "the measurement of service sector activity in direct proportion to the contribution of the service sector to the gross national product." While this appears to be an important milestone for services data collection, the Bureau of Economic Analysis, the agency responsible for the leading, coincident and lagging indicators, has expressed concern over the feasibility of implementing such a directive.*

With the exception of the index of leading indicators, the 1988 trade law does not break new ground in developing additional service sector data. The Act urges the Secretary of Commerce to complete the benchmark survey of international service transactions authorized in the 1984 Trade Act and, in fact, the first results of the 1986 survey were released in October of last year. This information is essential in multilateral trade negotiations, where data is needed to measure the value of concessions traded, as well as in services export promotion efforts and domestic policymaking.

Sector Specific Measures

While the entire range of service sectors is affected by the foregoing provisions of the Omnibus Trade and Competitiveness Act, the new law also contains a variety of sector-specific measures.

- Telecommunications: The USTR is directed to identify priority foreign countries whose policies and practices deny "mutually advantageous market opportunities" to U.S. producers of telecommunications products and services. The President must then enter into negotiations with these countries to obtain better market access and achieve other specific negotiating objectives. These negotiations may extend up to three years if progress is being made. In the absence of progress, the President is authorized to retaliate by denying suppliers from the offending country access to the U.S. telecommunications equipment and services market.

- Financial Services: The Federal Reserve may not designate a foreign firm as a primary dealer in U.S. government debt instruments if it finds that the foreign firm's home country denies equivalent opportunities to U.S. firms. In addition, the President is authorized to negotiate with foreign countries that are major financial centers to assure that U.S. banks and securities companies have access to and receive national treatment in those markets, to reduce and eliminate barriers to trade in financial services, to achieve reasonable comparability in the types of financial services that can be offered, and to develop uniform supervisory standards for banks and securities companies.

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*A description of revisions to the economic indicators underway at BEA, including the agency's position on inclusion of additional services data, appears in an article in the January 1989 issue of Survey of Current Business titled "Business Cycle Indicators: Revised Composite Indexes" by Marie P. Hertzberg and Barry A. Beckman.

- Shipping: The Federal Maritime Commission (FMC) is authorized to investigate foreign government and private sector practices that adversely affect U.S. maritime carriers. At its discretion, the FMC may act against these practices by limiting foreign carriers' sailings from U.S. ports, limiting the type or amount of cargo they may carry to and from the United States, suspending their right to operate under existing agreements or imposing additional fees of up to $1 million per ship.

- Air Transport: Current law permits U.S. air carriers to file complaints about discriminatory foreign practices with the U.S. Department of Transportation (DOT). DOT, at its discretion, may retaliate against the offending country by revoking its carriers' U.S. landing permits. The 1988 trade law shortens the time periods for these investigations and requires DOT to consult with the USTR and the Secretary of Commerce prior to taking action.

- Construction and Engineering: The new trade law requires USTR to initiate a Section 301 investigation of Japanese barriers to architectural, construction, engineering and related consulting services. This provision was motivated by alleged barriers to U.S. firms' participation in the huge Kansai airport project and other major public works projects in Japan.

* * * *

The 1988 Omnibus Trade and Competitiveness Act caps a 15-year effort to place services on par with manufactured products and agricultural commodities in U.S. international commercial policy. U.S. service firms now account for over $125 billion in foreign sales annually. Their activities in foreign markets, many of which do not show up in the balance-of-payments data, are critical to competitiveness and future growth at home. Data gaps on services are enormous, however, and government has yet to commit the resources and leadership necessary to support essential improvements. Although the increasingly "routine" treatment of services in U.S. trade law represents a wider-spread recognition of the role of services in the American economy, many challenges remain. The initiatives to negotiate services trade rules and open foreign markets to U.S. services will have a lasting impact on American economic prosperity.

CSI

SERVICES ECONOMIC HIGHLIGHTS

Allen Sinai
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Services At a Glance

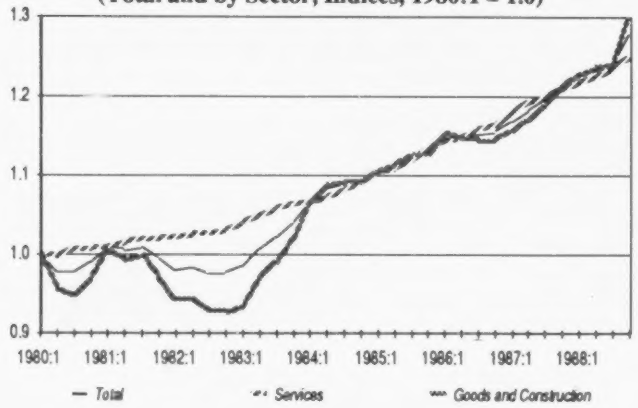
- ***Services GNP Measured by Expenditures***—or the service components of expenditures by consumers, businesses, government and the net service export balance—slowed to a 3% growth rate in 1988, from a 3.6% growth rate in 1987. Goods and construction GNP together grew 4.6% in 1988 and 3.1% in 1987.
- The ***Service Sector Leading Index***, which leads the sector's activity by about six months, rose at an annual rate of 2.5% in February, and the Commerce Department's Index of Leading Indicators (LEI) grew 2.8%. The annual growth rate of the coincident index, reflecting current economic conditions for the service sector, was 3.7%.
- ***Employment*** growth in service industries continued to be robust through February. An additional 2.875 million persons have joined the services workforce in the last twelve months. In February alone, the increase was 321,000 persons.
- ***Compensation per employee*** in the service sector rose 4.4% at an annual rate in February, and 3.8% in 1988 as a whole.
- ***Personal Consumption Expenditures*** on services increased at an annual rate of 4.1% in the fourth quarter, following a strong 4.4% gain in the third quarter. In 1988, growth of expenditures on services slowed to a 3.5% rate compared to a 4.1% increase in 1987, while personal consumption on goods increased by 2.2% up from 1.3% in 1987.
- ***Prices of Consumer Services*** for February were 4.9% higher than last year's level.
- The ***Stock Price Index*** for services rose 3.7% in February, and has been gaining steadily over the past three months.
- The ***True Services Trade*** balance rose to $7.8 billion in 1988 from $3.1 billion in 1987. The total service surplus declined to $4.8 billion from $19.8 billion in 1987.

Bottom Line: The service sector continues to expand at a steady rate, with excellent gains in employment. The services leading index shows continued expansion past mid-year, though inflation has picked up considerably, and is approaching the 5% year-over-year rate.

The Service Economy refers to the total economy, in which the service sector is the dominant factor. The service sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

The Service Economy at a Glance

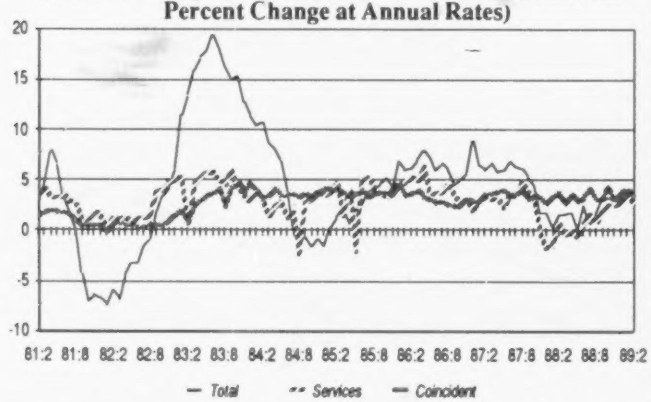
Chart 1
Real Gross National Product
(Total and by Sector, Indices, 1980:1 = 1.0)



Growth in Services GNP Slows

In 1988, growth in real services GNP— measured by expenditures— increased by 3%, following a 3.6% gain in 1987. The goods component, including construction, increased 4.6% in 1988, while goods less construction GNP rose 6%. The increase in total GNP was 3.9%—the largest since 1984.

Chart 2
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed Percent Change at Annual Rates)

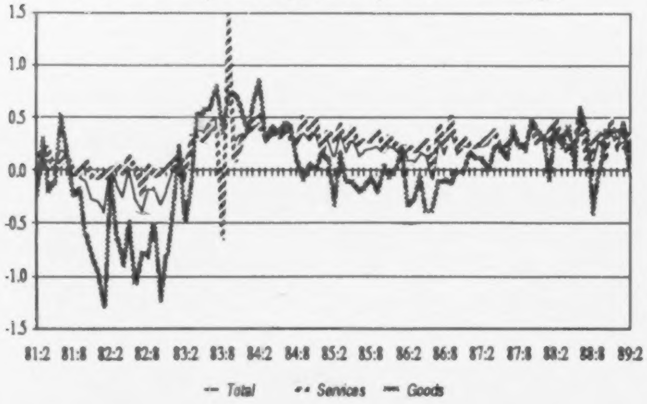


Slower Growth in Services Leading Index

The leading index for the service sector increased 2.5% in February, following a 3.6% increase in January. The increase in the coincident index for services was 3.7%, down from 4.1% in January. The leading indicator index for the total economy rose 2.8% in February and 4.2% in January.

The service sector indices are produced by the Center for International Business Cycle Research, Columbia University.

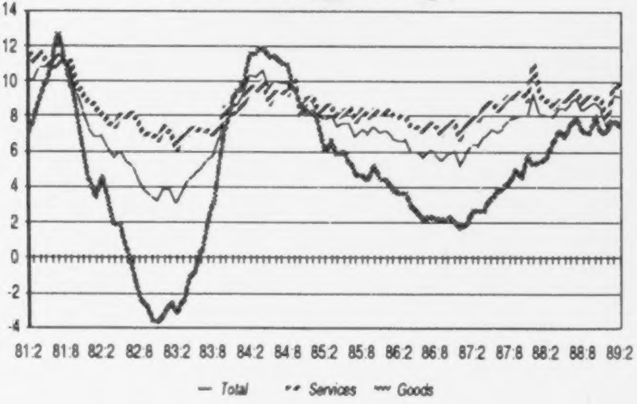
Chart 3
Employment Growth
(Total and by Sector, Monthly Percent Change)



Service Sector Employment Up

Service sector employment gains continue to be strong. In February, service sector employment increased by 321,000 persons. For all of 1988, service sector employment increased 3 million to 80.5 million persons. Employment in the goods sector showed a small decline of 32,000 persons in February, after steady increases for the past five months.

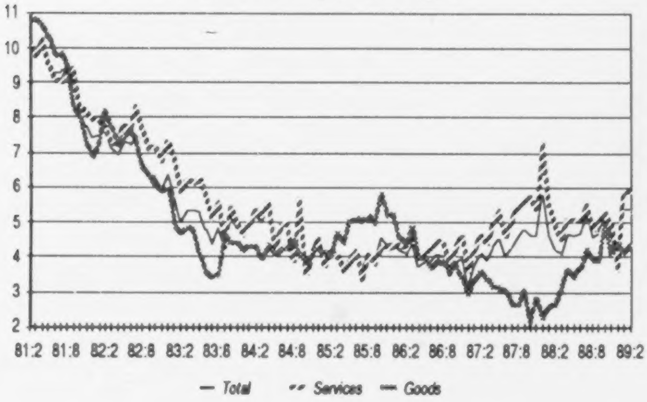
Chart 4
Compensation
(Percent Change, Year Ago)



Compensation Higher in Service Sector

In 1988, growth in services compensation rose to 7% from 3.9% in 1987—the largest increase since 1984, while growth in goods compensation remained at 8.9%. Compensation for all employees increased to 8.4% in 1988 after increasing 7.4% in 1987.

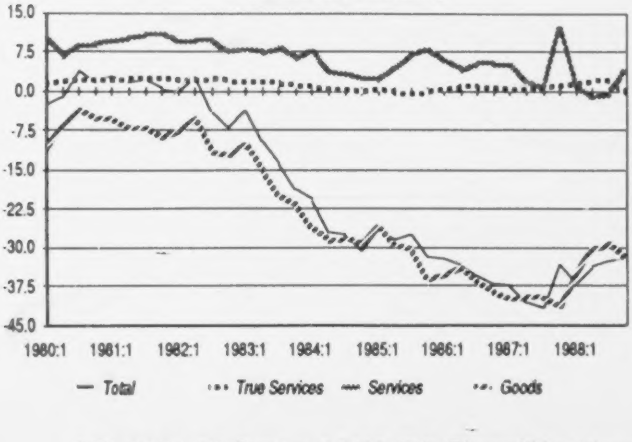
Chart 5
Compensation Per Employee
(Percent Change, Year Ago)



Compensation Per Employee in Services Up 3.8% in 1988

Compensation per employee in services increased by 3.8% in 1988, up from 3% in 1987. The increase in the goods sector compensation was 5% in 1988, slightly less than the 5.3% increase in 1987. In 1988, the overall compensation per employee rose 4.6%, after a 4.4% increase in 1987.

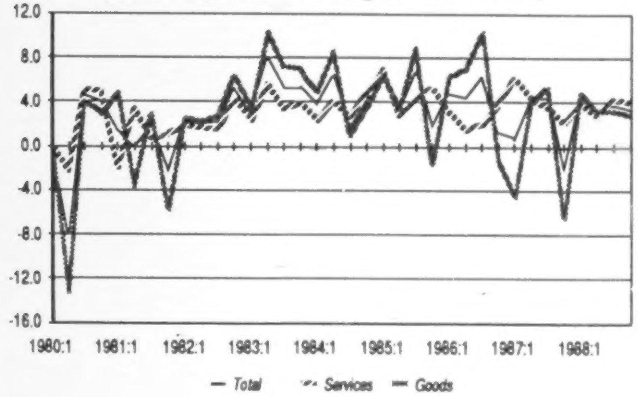
Chart 6
Current Account Balance and Components
(Billions of Dollars)



Service Balance Back in the Black; Surplus in True Services Down

The total services trade balance showed a $4.5 billion surplus in the fourth quarter, following deficits in the previous two. The surplus on the true service balance decreased to $1.6 billion, following a $2.2 billion surplus in the third quarter. In 1988, the services trade surplus declined $15 billion to $4.8 billion, while the true service balance increased to $7.8 billion from $3.1 billion.

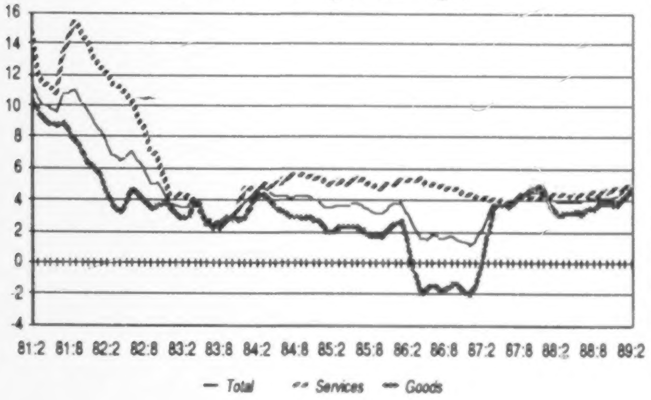
Chart 7
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Slows

In the fourth quarter, personal consumption expenditures on services and goods slowed to inflation-adjusted rates of 4.1% and 2.8%, respectively, from 4.4% and 3.3% in the third quarter. In 1988 as a whole, consumer expenditures on services increased 3.5%, and on goods 2.2%.

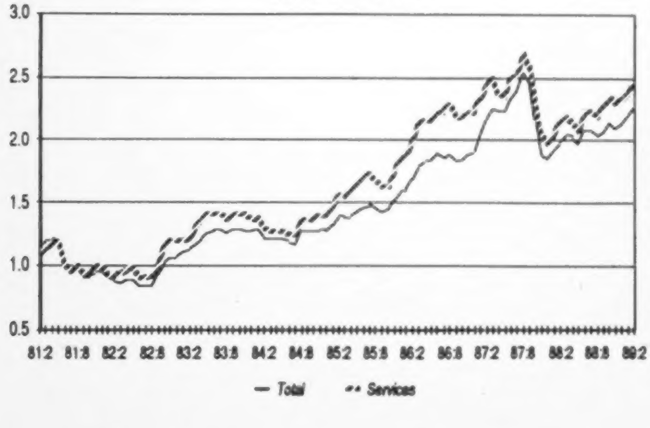
Chart 8
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Remains High

The year-over-year price increase in the service component of the Consumer Price Index (CPI-U) for February remained unchanged from January at 4.9%. The year-over-year increase in the goods component of the CPI-U rose to 4.8%, from 4.3% in January. In 1988, the overall CPI-U increased 4.1%, following an increase of 3.7% in 1987. The 1988 price increase in consumer services was 4.6%, while the increase for goods was 3.5%.

Chart 9
S&P 500 and Services Stock Price Indices
(1981:8 = 1.0)



Stock Prices Rise

The services stock price index and the S&P 500 rose in February to 3.6% and 3%, respectively. The indexes have risen steadily since November. The services stock price index increased 7.6% and the S&P Index rose 8.5%.

The services stock price index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

INTERNATIONAL TRADE IN SERVICES: HOW DO MAJOR COUNTRIES FARE?

by Allen Sinai and Zaharo Sofianou

While much is reported on international trade in merchandise, substantially less data is available on international trade in services. Part of the reason for this information gap is that fewer resources are being allocated to the measurement of services, and as a result services data appear later and are reported less frequently than data on trade in goods. In addition, most countries include import and export figures for services along with total international transactions and transfer payments on their current account balance reports. Thus, unlike merchandise exports and imports, services trade figures often are not reported separately.

What are Service Exports? Which Countries Dominate?

Under the general heading of "service" exports and imports are a number of different categories, all of which involve international transfer of money in return for a non-tangible benefit. Table 1 lists the broad categories of service exports and each category's share of total services trade in 1987.

Shipment includes the freight charge, and often the insurance costs, of exporting merchandise. The shipping credit goes to the country exporting the goods. Exports of shipment services are about 6% to 7% of total world service exports. Shipment exports by industrialized countries were 78.4% of the world total (down from 81% in 1981), while imports of shipment services by industrialized countries were 64.4% of total, (up from 50.6% in 1981).

Developing countries have increased their share of shipment exports somewhat, from 19% in 1981 to 21.7% in 1987, and lowered their share of shipment imports, from 49.4% in 1981 to 35.6% in 1987. Part of the reason for the increase in shipment exports by developing countries is the emergence of the newly industrialized countries, particularly Korea and Taiwan, as top exporters of goods while the large decline in the imports of shipment services by developing countries is mainly due to a reduction in imports by many debt-burdened Latin American countries.

Table 1
Broad Service Export Categories
(Percent of Total)

	1981	1987
Shipment	8.1	6.7
Other Transportation	10.2	8.8
Travel	13.0	14.8
Earnings from Direct Investment	6.9	8.6
Reinvested Earnings on Direct Investment	2.4	5.0
Other Direct Investment Income	4.5	3.6
Other Investment Income	38.6	35.6
Other Official Goods, Services, and Income	4.3	4.6
Other Private Goods, Services, and Income	18.9	20.9

Sources: International Monetary Fund, The Boston Company Economic Advisors, Inc

Other Transportation is the cost of transporting goods for other countries, about 8% to 9% of total service exports, and is also dominated by developed countries. In 1987 transportation export earnings of developed countries were 75% of the total, up from 71% in 1981, while those of developing countries were 24.6% of the total, down from 28.5% in 1981. The United States' export share of transportation services was almost 20% in 1987, up from 14.4% in 1981.

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Travel, which includes passenger air fares and tourist expenses in foreign countries, was 14.8% of total service exports, up from 12.2% in 1982. Travel services is one of the fastest growing categories, with travel income increasing more than 50% between 1981 and 1987. In 1987, developed countries had 71.9% of total income from travel exports, up from 66% in 1981, the smallest share in any of the service export categories. Developing countries had a relatively large 28% of the travel income, but that was down from 34% in 1981. For the most part, the countries benefiting most from the higher travel earnings were European, especially France, Germany, Italy, and Switzerland. On the whole, the European Economic Community's share of service exports increased to 45.5% from 38.5% in 1981.

At the same time, developed countries account for most of the "imports of travel", (or actual foreign traveling), an indication of increased wealth and leisure time. The developed countries' share of travel expenses increased to 83% from 70.5%, while that of the developing countries declined to only 16.8% from 29.5%. Germany stands out, with 15.9% of total world travel imports. Japan's share of travel expenses is increasing, up to 7.3% of total, from 4.7% in 1981. The United States accounts for 13.8% of total travel expenses, down from 16.9% in 1984.

Income on Foreign Direct Investments may not constitute a pure service transaction, however, in a sense this benefit is a service payment for the use of foreign capital.

Income from direct investment abroad, both repatriated and reinvested, was 8.5% of total service exports, up from 6.9% in 1981. While it is still only a small part of service exports, it has shown the fastest rate of increase of any category, with an increase of 66.7% since 1981. One reason for this growth is the relaxing of international barriers to both capital movement and direct investment.

Developing countries have little direct investment income, as foreign direct investment is traditionally undertaken by capital-rich nations. In 1987, developing nations had less than 1% of the world's total income from direct investment. Instead, developing countries "import" direct investment from advanced countries, i.e. they make payments on foreign capital. By 1987, direct investment payments by developing nations had decreased to 28% of total, down from 51% in 1981.

Income on Other Investments is mainly interest income on foreign securities. While this also may not be a pure service transaction, it can be classified as a service export, using the same standard as in the direct investment case—payment for the use of another country's capital. This is the single largest category of service exports, making up about 39% of the total.

Government Income on Services is comprised largely of non-market services and goods transactions, such as military aid, either in the form of advice or arms. It is the smallest component of service exports and imports, making up less than 5% of total.

Table 2
Country and Region World Services Import and Export Shares
(Percent)

	Exports		Imports	
	1981	1987	1981	1987
Industrialized Countries	76.6	80.1	65.4	74.4
Developing Countries	21.9	17.0	32.6	22.7
United States	18.2	17.4	11.4	14.7
Canada	1.5	1.6	2.9	3.3
Japan	5.2	7.9	6.3	8.1
Australia	0.7	0.7	1.3	1.6
EEC	45.0	44.8	38.4	39.9
Belgium-Luxemburg	5.0	4.8	4.4	4.1
France	8.9	7.9	6.9	6.6
Germany	6.4	8.1	6.7	8.5
Italy	3.3	3.9	2.8	3.7
Netherlands	3.8	3.6	3.3	3.4
United Kingdom	14.2	12.4	11.6	10.0
Other EEC	3.5	4.1	2.8	3.5
Switzerland	1.7	3.2	0.8	1.8
Korea	0.9	1.0	1.0	0.9
Singapore	1.3	1.0	0.6	0.6

Sources: The International Monetary Fund, The Boston Company Economic Advisors, Inc.

Other Private Receipts on Services includes miscellaneous private services rendered to foreigners, such as advertising, business, legal, or even the use of skilled or unskilled workers by other countries. This category accounts for about 20% of total world exports of services, making it the second largest grouping. Developing countries claimed 20% of their total income from "Other Private Services" in 1988, a rather large proportion, earned in part through the "exporting" of skilled and unskilled labor.

Which Countries Dominate Service Exports? Which Have the Largest Balance?

The following analysis ranks countries both by the size of their service exports alone and the size of their service trade balance.

As a group, the industrialized countries dominate service exports. At the end of 1987, 80% of total service exports were from industrialized countries, up from 76.6% in 1981, while the developing countries' share of service exports fell to 17% in 1987 from 21.9% in 1981.

Within the industrialized countries, the European Economic Community (EEC) produces the largest volume of service exports. Together, all of the EEC countries account for a large 44.8% of total world service exports.

By country, the largest service exporter is the United States, which accounted for 17.4% of total world service exports in 1987, followed by the United Kingdom, with a 12.4% share. However, the share of both countries has declined over the past few years and probably continued to decline in 1988. The United States' share of services exports is down from 19.2% in 1984, despite a 27.7% increase in its total service exports. The United Kingdom's world share declined from 14.2% in 1981, even though its service exports increased 17.2% that year. A decline in world share concurrent with growing service exports reflects strong service growth by other countries.

In 1987 Germany ranked third in services exports, with a much smaller 8.1% share, while France and Japan were each fourth largest, with a 7.9% share. However, the services exports of Japan and Germany are increasing at a rapid rate. In 1981 the share of Japan's services exports was only 5.2%, and that of Germany was 6.4%. Between 1981 and 1987, Germany's exports increased 70%, while Japan's more than doubled. It is likely that services exports of Japan and Germany have continued to increase in 1988, and that their share of the total has increased as well.

The Services Trade Balance

In addition to looking at the magnitude of services trade, it is also useful to look at which countries are in surplus and which in deficit.

As a group, industrialized countries have most of the world's service surplus, $19.2 billion, while developing countries have a $69.9 billion deficit in net service exports. The EEC has a $28.9 billion surplus in services, despite the large deficits of some of its members.

By country, the United States is not only the world's largest service exporter and importer, but also had the world's largest service trade surplus through 1987. Between 1981 and 1987, U.S. service imports increased 63.7%. Its share of world imports increased to 14.7% in 1987, from 11.4% in 1981, and will likely be higher in 1988. The higher rate of increase in service imports over exports, however, has resulted in a deterioration of its surplus, from $42.1 billion in 1981 to $19.7 billion in 1987.

Table 3
Regional and Country Service Exports Trade Balances
(Billions of Dollars)

	1981	1982	1983	1984	1985	1986	1987
Industrialized Countries	31.8	24.0	25.2	14.8	20.6	26.6	19.2
Developing Countries	-108.5	-114.6	-102.7	-104.9	-97.5	-79.2	-69.9
United States	42.1	36.3	30.0	17.2	20.7	21.4	19.7
Canada	-12.7	-13.8	-13.3	-14.5	-14.9	-16.5	-18.6
Japan	-13.5	-9.7	-9.1	-7.7	-5.3	-4.9	-5.9
Australia	-6.1	-5.8	-6.1	-7.8	-8.1	-8.5	-9.4
EEC	18.8	12.8	18.8	23.1	22.4	28.3	28.9
Belgium-Luxemburg	1.6	2.0	2.4	2.0	1.8	3.5	4.5
France	9.4	8.3	7.4	6.6	8.0	9.8	9.7
Germany	-8.5	-9.0	-6.1	-2.1	-1.7	-3.5	-9.0
Italy	1.6	1.4	2.4	1.7	1.5	0.0	-0.2
Netherlands	1.3	1.3	1.7	1.9	-0.4	-1.0	0.3
United Kingdom	10.1	6.9	9.6	10.8	11.5	16.0	19.1
Other EEC	3.3	1.8	1.5	2.1	1.8	3.7	4.4
Switzerland	5.7	7.0	7.5	8.0	8.6	10.8	13.1
Korea	-1.5	-0.6	-0.4	-0.9	-1.5	-0.7	1.0
Singapore	4.8	5.6	5.4	3.9	3.1	2.8	3.3

Sources: The International Monetary Fund, The Boston Company Economic Advisors, Inc.

The main factor contributing to the deterioration of the net service export balance is higher payments to foreigners for their holdings of U.S. securities. The U.S. balance on interest income was estimated at a deficit of $21.7 billion in 1987, a decline of over $30 billion from a surplus position through 1984. Other factors contributing to the sharp decline include a drop in net receipts from shipments, due to an increase in merchandise imports over exports, and increased travel payments by U.S. residents.

The total U.S. service balance was only marginally higher than the $19.1 billion surplus of the United Kingdom in 1987, with any subsequent changes in 1988 still unclear. While U.K. service exports did not grow as fast as U.S. service exports, its service imports grew at a slower pace than its exports. As a result, its surplus has almost doubled since 1981, in contrast to the U.S. surplus which was reduced by more than half. If the trends for these two countries continued, the United Kingdom will have the world's largest service trade surplus in 1988.

While Germany and Japan have rapidly growing service exports, their net balances are in deficit. For Germany, the total deficit in 1987 was $9 billion, with the deficit on travel a large $16.1 billion. Between 1981 and 1987, Germany's services imports increased 60%, with most of the increase coming from travel, direct investment payments, and "other private goods and services".

Japan's service trade deficit was reported at $5.9 billion in 1987, up from $4.9 billion in 1986, but down from $13.5 billion in 1981. While Japan's service imports have been increasing, the growth rate has been considerably slower than that of its service exports. Between 1981 and 1987, Japan's service imports increased 63.4%. This increase in service imports was recorded for most categories, with travel expenses up 130% since 1981, while payments to foreigners for Japanese-held securities doubled.

Conclusion

The United States is the largest single service exporter followed by the United Kingdom, while the EEC is the largest single economic entity in all areas of service exports, with about half the world's total. Through 1987, the United States also had the largest service trade surplus in the world, followed by the United Kingdom. However, the U.S. service balance probably deteriorated sharply in 1988, and given a trend of higher service imports, the U.S. surplus may soon disappear altogether. At the same time, countries with large merchandise trade surpluses, such as Japan and Germany, are currently running services trade deficits, but with rapidly rising service exports.

Industrialized countries dominate service exports and their share continues to expand. Developing countries have a small share of the world's service exports and a much larger share of the imports, although the newly industrialized countries are beginning to narrow the gap, particularly in the area of shipment exports. All groups have much to gain by dismantling the barriers to services trade.

Table 1
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1987:3	1987:4	1988:1	1988:2	1988:3	1988:4	1984	1985	1986	1987	1988
Gross National Product	3865.3	3923.0	3956.1	3985.2	4009.4	4033.4	3501.4	3618.7	3721.7	3847.0	3996.0
Services	1806.6	1822.3	1833.4	1846.1	1862.8	1879.2	1625.2	1684.4	1738.1	1801.1	1855.4
Goods and Construction	2058.6	2100.6	2122.7	2139.1	2146.7	2154.2	1876.3	1934.5	1983.7	2045.9	2140.7
Construction	381.1	386.7	374.6	376.7	377.7	384.6	367.1	380.8	384.7	382.6	378.4
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3501.4	3618.7	3721.7	3847.0	3996.0
Services	NA	NA	NA	NA	NA	NA	2312.0	2407.8	2498.9	2595.4	NA
Goods	NA	NA	NA	NA	NA	NA	1132.3	1176.1	1190.6	1228.9	NA
Manufacturing	NA	NA	NA	NA	NA	NA	757.9	786.8	804.6	839.5	NA
Agri./Mining/Construction	NA	NA	NA	NA	NA	NA	374.4	389.3	386.0	389.4	NA
Consumption Expenditures	2545.2	2531.7	2559.8	2579.0	2603.8	2626.2	2249.3	2354.8	2455.2	2520.9	2592.2
Services	1246.8	1253.6	1265.9	1274.8	1288.9	1302.2	1100.3	1152.3	1190.7	1239.5	1283.0
Goods	1298.4	1278.1	1293.8	1304.2	1314.9	1323.9	1149.0	1202.5	1264.5	1281.5	1309.2
Plant and Equipment Expenditures	391.2	403.0	408.9	424.1	431.6	NA	358.0	391.6	376.3	384.9	NA
Services Industries	229.0	236.9	236.4	248.2	249.9	NA	193.6	213.7	219.7	226.3	NA
Goods Industries	162.2	166.2	172.5	175.8	181.7	NA	164.4	177.9	156.6	158.6	NA
Corporate Profits—Billions of Dollars	234.6	222.2	236.6	243.1	243.8	NA	203.2	191.4	212.8	222.3	NA
Service Industries	127.6	120.5	126.0	128.6	132.4	NA	114.5	111.8	133.4	125.4	NA
Goods Industries	107.0	101.7	110.6	114.5	111.4	NA	88.8	79.7	79.4	96.8	NA
Current Account Balance—Quarterly rates	-42.0	-33.5	-37.0	-33.8	-32.6	-31.9	-107.1	-115.1	-138.8	-154.0	-135.3
Services Balance	0.7	12.0	1.3	-0.9	-0.2	4.5	17.5	22.1	21.0	19.8	4.8
True Services Balance *	0.8	1.2	1.6	2.3	2.2	1.6	2.0	0.4	3.3	3.1	7.8
Merchandise Trade Balance	-39.7	-41.2	-35.2	-30.2	-29.2	-32.0	-112.5	-122.1	-144.5	-160.3	-126.5

* *True Services Balance is the balance on Service exports and imports excluding receipts and payments on investments and government transactions.*

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1987:3	1987:4	1988:1	1988:2	1988:3	1988:4	1984	1985	1986	1987	1988
Gross National Product	4.4	6.0	3.4	2.9	2.4	2.4	6.8	3.4	2.8	3.4	3.9
Services	2.1	3.5	2.4	2.8	3.6	3.5	2.5	3.6	3.2	3.6	3.0
Goods and Construction	6.5	8.2	4.2	3.1	1.4	1.4	10.8	3.1	2.5	3.1	4.6
Construction	0.9	5.9	-12.5	2.2	1.1	7.3	12.4	3.7	1.0	-0.5	-1.1
GNP—Product Measure	NA	NA	NA	NA	NA	NA	6.8	3.4	2.8	3.4	3.9
Services	NA	NA	NA	NA	NA	NA	5.4	4.1	3.8	3.9	NA
Goods	NA	NA	NA	NA	NA	NA	10.7	3.9	1.2	3.2	NA
Manufacturing	NA	NA	NA	NA	NA	NA	12.2	3.8	2.3	4.3	NA
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	7.8	4.0	-0.8	0.9	NA
Consumption Expenditures	4.5	-2.1	4.4	3.0	3.8	3.4	4.8	4.7	4.3	2.7	2.8
Services	3.6	2.2	3.9	2.8	4.4	4.1	3.5	4.7	3.3	4.1	3.5
Goods	5.4	-6.3	4.9	3.2	3.3	2.8	6.1	4.7	5.2	1.3	2.2
Plant and Equipment Expenditures	17.6	12.1	5.8	14.8	7.1	NA	16.6	9.4	-3.9	2.3	NA
Services Industries	13.8	13.7	-0.8	20.0	2.7	NA	13.6	10.4	2.8	3.0	NA
Goods Industries	23.2	9.9	15.2	7.7	13.4	NA	20.3	8.2	-12.0	1.2	NA
Corporate Profits %Change, Year-Over-Year	8.0	4.9	11.1	10.9	3.9	NA	22.0	-5.8	11.1	4.5	NA
Service Industries	-11.0	-2.9	-1.7	2.6	3.8	NA	18.7	-2.4	19.4	-6.0	NA
Goods Industries	45.0	16.0	30.4	22.1	4.1	NA	26.5	-10.3	-0.4	22.0	NA

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Monthly Indicators)

	1988:9	1988:10	1988:11	1988:12	1989:1	1989:2	1984	1985	1986	1987	1988
Total Employment—											
Millions of Persons	106.7	107.0	107.4	107.6	108.1	108.3	94.5	97.5	99.5	102.3	106.0
Service Industries	81.1	81.2	81.6	81.8	82.0	82.3	69.8	72.7	75.0	77.5	80.5
Goods Industries	25.6	25.7	25.8	25.9	26.0	26.0	24.7	24.9	24.6	24.8	25.6
Total Compensation—											
Billions of Dollars	2475.0	2506.9	2514.1	2529.5	2558.4	2572.6	1838.6	1974.9	2094.0	2248.4	2436.9
Services	1770.6	1790.5	1799.1	1814.6	1837.1	1848.6	1261.0	1365.7	1468.5	1598.6	1741.4
Goods	704.4	716.4	715.0	714.9	721.3	724.0	577.6	609.2	625.5	649.8	695.4
Total Compensation—											
% Change, Year-Over-Year	8.6	8.9	8.4	7.5	9.2	9.1	9.7	7.4	6.0	7.4	8.4
Services	7.1	8.1	7.1	7.3	7.8	7.5	10.4	5.5	2.7	3.9	7.0
Goods	9.2	9.2	8.9	7.6	9.8	9.7	9.3	8.3	7.5	8.9	8.9
Compensation Per Employee,											
% Change, Year-Over-Year	4.7	5.2	4.7	3.8	5.4	5.4	4.7	4.1	3.9	4.4	4.6
Services	4.0	5.1	4.1	4.4	4.2	4.4	4.2	4.9	3.9	3.0	3.8
Goods	5.1	5.3	4.9	3.7	5.9	5.8	4.8	4.0	4.2	5.3	5.0
Consumer Price Index—All Urban,											
% Change, Year-Over-Year	4.2	4.2	4.2	4.4	4.7	4.8	4.3	3.5	1.9	3.7	4.1
Services	4.6	4.7	4.8	4.8	4.9	4.9	5.3	5.1	5.0	4.1	4.6
Goods	3.8	3.8	3.7	3.8	4.3	4.8	3.4	2.1	-1.0	3.2	3.5
Services Leading Indicator Index (%)*	1.9	2.5	2.6	2.9	3.6	2.5	2.3	3.5	4.0	3.0	0.6
Leading Economic Indicator Index—Total (%)*	3.1	3.3	3.0	3.6	4.2	2.8	2.1	3.3	6.6	5.2	2.2
Services Coincident Indicator Index (%)*	3.1	4.4	3.1	3.8	4.1	3.7	3.7	3.8	3.1	3.5	3.5
Service Industries Stock Price Index	91.0	94.3	91.7	92.9	95.2	98.7	53.0	66.2	86.3	95.4	88.3
S&P 500 Stock Price Index	268.0	277.4	271.0	276.5	285.4	294.0	160.5	186.8	236.3	286.8	265.8

* *Growth Rate expressed in six-month smoothed percent changes at annual rate.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

THE SERVICE ECONOMY is a product of the CSI Task Force on Data Collection and Statistical Improvement. Comments or suggestions should be directed to Maria Eli of CSI, at 202/467-3054.

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SECTORAL PRODUCTIVITY MEASUREMENT AND CAPITAL MARKETS

Professor Gerald R. Faulhaber

Since the beginning of modern macroeconomic measurement after World War II, one of the most striking and consistent facts uncovered by these measures is that the productivity growth of services has been less than that of manufacturing. The manufacturing sector is perceived as leading the nation's economic growth, while services have been characterized as "a drag on the economy," due to their apparent low productivity growth. As the U.S. economy, and indeed the economies of all OECD countries, shifts rapidly toward the services, this low productivity growth is perceived by many to be a sign of general economic decline of our worldwide competitive position.

A detailed discussion of the development of the service sector stock price index, a highly simplified two-sector macro model, and the empirical implications of the model appear in a paper titled "Unbalanced Growth Redux: Sectoral Productivity and Capital Markets," co-authored by Professor Faulhaber, Franklin Allen and A. Craig Mackinlay, all of the University of Pennsylvania. The paper was presented at an NBER seminar (December 9, 1988, National Bureau of Economic Research, Cambridge, MA.), and at the American Economic Association meetings in New York, December 30, 1988.

Gerald Faulhaber, a professor at the Wharton School of the University of Pennsylvania, recently retired as director of the Fishman-Davidson Center for the Study of the Service Sector at Wharton.

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The "fact" (more accurately, empirical consistency) of low productivity growth of services was central to the well-known "Unbalanced Growth" model of William J. Baumol (1967), in which he showed that the very growth of the service economy could be fully explained by its lagging productivity! In later work (Baumol, Blackman, and Wolff (1985)), the thesis was refined and somewhat softened, but the popular image of the growth of services as a symbol of national decline remains strong to this day.[1]

This powerful idea has entered the mainstream of not only economic thought but of public policy discourse as well. A number of recent policy commentators (see, for example, Bluestone and Harrison (1982)) suggest that a national economy cannot be based on services, and that the growing size of the service sector is a sign of national weakness and decline. Somewhat unfairly, many take the unbalanced growth model as the intellectual underpinning of this view.

Mismeasurement of Services Output Results in Low Productivity

In fact, the "hard" productivity data have been suspect for some time. Many authors have surveyed a variety of theoretical and empirical problems related to the measurement of productivity, particularly in services (Kendrick (1977) and (1985); Kendrick and Vaccara (1980); Griliches (1987); and Siniscalco (1988)). A thorough review of these problems is beyond the scope of this article, but suffice it to say that (i) the more serious problems center on the measurement of services' outputs, and (ii) there is some agreement, though by no means universal, that measurement error tends in the direction of underestimating services output and, therefore, of underestimating their productivity growth.

In general, the two methods used to measure service outputs are (i) deflating industry sales using a price index, and (ii) extrapolating from a base year measure using a related indicator, often an input measure such as employment. The deflation method, even at its best, fails to account for changes which improve the benefits received by consumers of the service in question, such as higher quality, more customization to individual need, more product choice, etc. Price changes which reflect these quality changes are apt to be attributed to inflation in that particular industry. At its worst, the deflation method is often based on price indices that represent only a subset of services in the industry, or even indices in related industries.

The accuracy of the extrapolation method depends upon (a) the appropriateness of the quantity measure for the base year, and (b) the indicator used to extrapolate from base year to base year. In the first case, quantity measures are often chosen on the basis of data availability, not any direct measure of consumer utility for that measure. Health care output, for example, may be measured by doctor visits, or hospital beds occupied, which can be easily measured, rather than by improved health and quality of life, which cannot be measured, but are likely to be what consumers of health services care about. It is not unreasonable to expect that improvements in medical technology have increased the value of health care given to consumers during each doctor visit; yet this improvement would not be measured if "doctor visits" were the unit of output used for base year calculations.

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[1] A picture Professor Baumol would vigorously dispute.

Even more suspect is the use of indicators to extrapolate from a base year quantity measure. Kendrick's (1985) survey showed that for those service industries where output was measured by the extrapolation technique, 70 percent (in value terms) used indicators based on labor input. Since productivity growth is measured as the change in outputs divided by inputs, it is clear that this approach will by definition yield zero productivity growth!

Quality Improvements Are Difficult to Measure

Central to the productivity debate is that the output of services is difficult or impossible to measure, and that this output itself may be subject to beneficial productivity improvements that cannot be measured by direct techniques. Any product, service or good, has both a benefit to customers as well as costs to producers. Productivity improvements that reduce costs – "process" innovations – tend to be somewhat easier to measure than productivity improvements that increase benefits to customers, such as higher quality, new and/or improved services, or increased responsiveness to customer needs –"product" innovations. In some manufacturing industries with well-defined products, this measurement problem can be ameliorated through the use of hedonic price indices. Efforts along these lines have been made in the computer industry, for example. However, little progress has been made with such indices in services. If our standard measurement techniques cannot assess productivity improvements on the benefit side, it is no surprise that services have not fared well in comparison with manufacturing. The problem, however, is not services: it is the technology of economic measurement.

Note that this is not a problem for which the solution is "more data." The difficulty is not that we know what to measure but do not have the resources to measure it. The difficulty is far deeper than that: we do not know what to measure!

Capital Markets Provide An Indirect Measure of Productivity

What can be said about the growth of the service sector and its implications for the economic health of the nation without relying on direct measurement of sectoral productivity growth? Our research approach is to look for the tracks of productivity improvements elsewhere in the economy by developing indirect measures of productivity. To that end, we have developed an extensive stock market index of the service sector, which measures the total return (dividends plus capital gains) of the stock of every service firm traded on the New York Stock Exchange, the American Stock Exchange, and the NASDAQ market, from 1963 to 1987.

We use stock return data provided by the Center for Research in Security Price (CRSP) of the University of Chicago to construct indices of return for fifteen industry groups of the service sector, as well as an overall index of returns for the service sector as a whole. The salient result that emerges from this historical analysis is that a $1.00 investment in the service index in 1963 would have been worth $14.27 at the end of 1987, whereas a $1.00 investment in the Standard & Poor's 500 index would have been worth $10.57. This capital market performance is difficult to reconcile with the conventional view that services have been poor economic performers relative to goods.

This disparity of rates of return could be interpreted by some as evidence that stock markets are too random to be useful as economic indicators. However, unless stock markets are purely random, the appropriate remedy is to increase the sample size. The fact that the service sector index, consisting of several thousand firms, outperformed the market over a twenty-five year period suggests it is unlikely to be a market fad, random noise, or "bubble." One need not be a strict adherent of stock market efficiency to be persuaded that such a broadly-based financial market performance reflects economic performance of the service sector as a whole equal or superior to that of manufacturing.

How does this empirical result relate to the productivity debate? In reality, productivity growth occurs as a result of product or process innovation, capital deepening, or the achievement of scale economies. In perfectly competitive markets, any potential profits from innovation are competed away, and show up as lower prices and/or greater benefits to consumers. More realistically, innovation may lead to greater profits, because few markets are perfectly competitive. In practice, therefore, we would expect firms that are consistently successful innovators, all things being equal, to have consistently better profit performance. And over the long run, we would expect such firms to have consistently better stock market performance.[2]

It should be noted that direct measures differ from indirect capital market measures in that the former examines past productivity while the latter reflects investors' expectations in future productivity, as well as present performance. At any point in time these two may differ significantly; over the long term, such as the twenty-five years of our sample, this difference is likely to be small. Therefore, we can expect that the long-term productivity effects that broadly affect each sector will be reflected in the index. The conventional view of low productivity growth of services implies that the service index must be relatively poor. Instead, we find its performance to be strong, suggesting that growth in the productivity of services has at least kept pace with that of manufacturing.

The logic of our argument should now be clear; those sectors in which actual productivity improvement (directly measurable as well as not directly measurable) is greatest will, all things being equal, have the best profit performance and the best stock market performance. Hence, we should see the evidence of actual productivity improvement in capital markets; and the evidence we do see suggests that the service sector has outperformed the economy as a whole, contrary to the evidence of direct measurement.

---

[2] While use of capital market data to make inferences regarding productivity is unusual, we are not the first to do so. Baily (1981) uses the market value of assets to estimate the flow of capital services in his highly original approach to explaining the recent productivity slowdown.

* * * *

Initial research in this area of services productivity measurment has raised serious doubts about the conventional wisdom that services are less productive than manufacturing. The work is quite preliminary, however, raising as many questions as it answers, and this initial effort must be followed up with more disaggregated theory and empirical analysis in order for the work to be taken as evidence that services are indeed a highly productive sector. We attempt merely to point the way to a new direction of research.

CSI

SERVICES ECONOMIC HIGHLIGHTS

Allen Sinai
Chief Economist, Boston Company Economic Advisors, Inc.

Services At a Glance

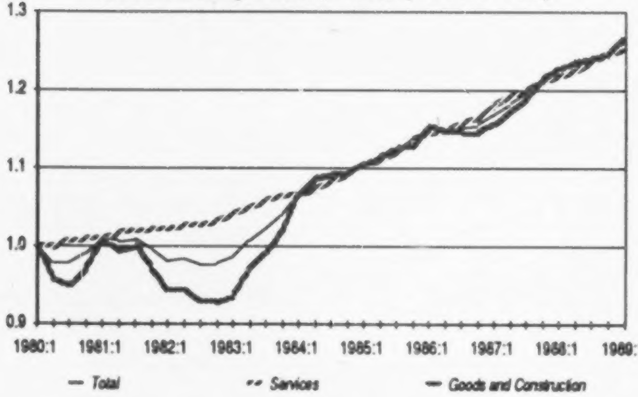
- *Services GNP Measured by Expenditures*—or the service component of expenditures by consumers, businesses, government and the net service export balance—slowed to a 1.6% growth rate in the first quarter of 1989, from a 3.5% growth rate in the fourth quarter—the smallest increase since the second quarter of 1986.
- The *Service Sector Leading Index*, which leads the sector's activity by about six months, rose at an annual rate of 3.8% in May, while the Commerce Department's index of leading indicators (LEI) declined 0.5%. The annual growth rate of the coincident index, reflecting current economic conditions for the service sector, was 2.3%.
- *Employment* growth in service industries continued to be robust through May. An additional 2.764 million persons have joined the services workforce in the last twelve months. In May alone, the increase was 134,000 persons.
- *Services Investment* climbed 17.7% in the first quarter, after a 2.0% decline in the previous quarter, while goods investment slowed to a 0.5% growth rate from a 0.7% rate in the fourth quarter.
- *Personal Consumption Expenditures* on services increased at an annual rate of 2.7% in the first quarter, following a strong 4.1% gain in the fourth quarter, while personal consumption of goods declined by 0.1%, following a 2.8% rise in the previous quarter.
- *Prices of Consumer Services* for May were 5.0% higher than last year's level.
- The *Stock Price Index* for services rose 5.4% at an annual rate in May, following a 4.1% increase in April.
- *Profits in Service Industries* slowed to a 4.0% growth rate, compared to a large 15.4% rate in the previous quarter. Overall profits grew 3.1%, down from a 16.7% increase in the fourth quarter.
- *Net Services Exports* posted a surplus of $369 million in the first quarter of 1989—the smallest in over six years. The balance on true services trade was $5.7 billion.

Bottom Line: Service sector economic expansion is steady, although at a slower pace than in recent years. Employment gains in services remain strong, while goods sector employment is weakening.

The Service Economy refers to the total economy, in which the Service Sector is the dominant factor. The Service Sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

The Service Economy at a Glance

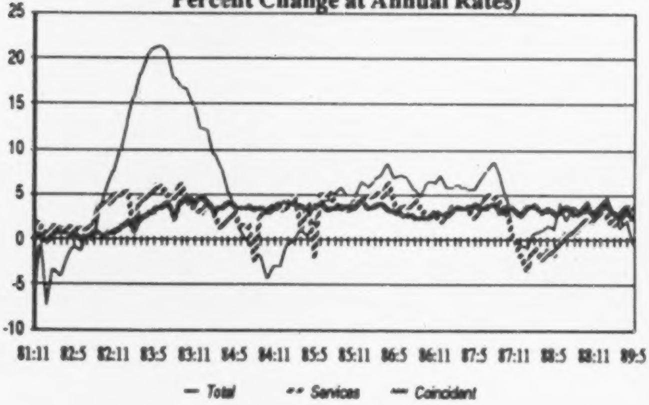
Chart 1
Real Gross National Product
(Total and by Sector, Indices, 1980:1 = 1.0)



Growth in Services GNP Slows

In the first quarter of 1989, growth in real services GNP—measured by expenditures—slowed to a 1.6% growth rate, following a 3.5% gain in the previous quarter. The goods component, including construction, increased 6.8% in the first quarter, while goods less construction GNP declined 3.3%. The increase in total GNP was 4.4%—the largest since the fourth quarter of 1987.

Chart 2
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed, Percent Change at Annual Rates)

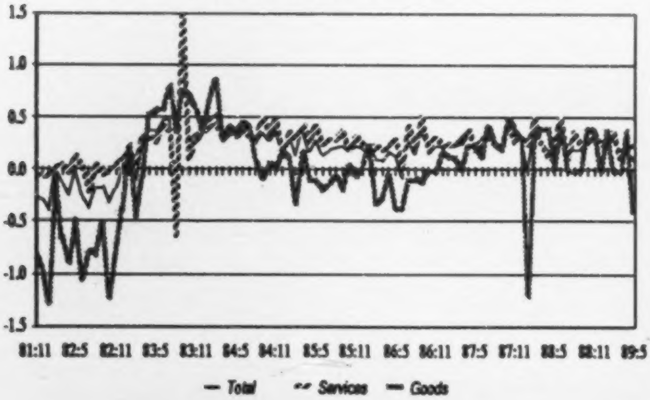


Slower Growth in Services Leading Index

The leading index for the service sector rose 3.8% in May, following a 3.9% increase in April. The increase in the coincident index for services was 2.3%, down from 3.7% in the previous month. The leading indicator index for the total economy declined 0.5%, after a 2.1% gain in April.

The Service Sector Indices are produced by the Center for International Business Cycle Research, Columbia University.

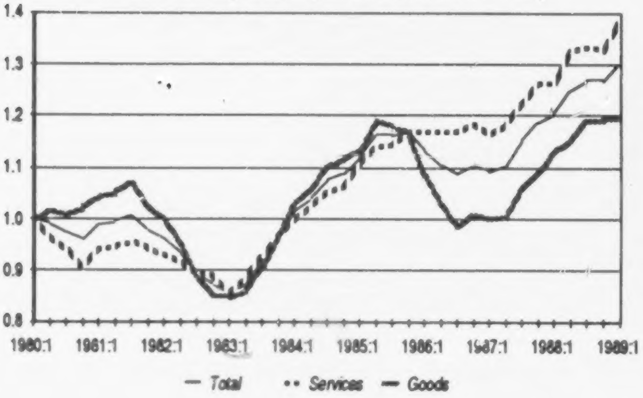
Chart 3
Employment Growth
(Total and by Sector, Monthly Percent Change)



Service Sector Employment Up

Service sector employment gains continue to be strong. In May, service sector employment increased by 134,000 persons. For the first five months of 1989, service sector employment averaged 82.2 million persons, 2.7 million higher than the average over the same period in 1988. Employment in the goods sector showed a small decline of 33,000 persons in May, after steady increases for the past eight months.

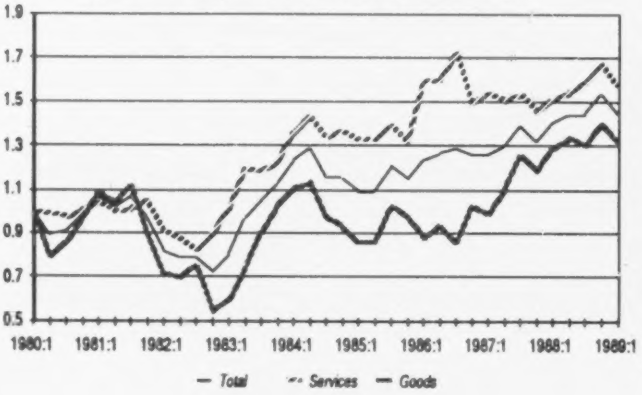
Chart 4
Real Expenditure on Plant and Equipment
(Total and by Sector, Indices, 1980:1 = 1.0)



Services Investment Climbs

Service industries increased real expenditures on plant and equipment (P&E) by a large 17.7% in the first quarter, following a 2.0% contraction in the previous quarter. Goods industries increased capital outlays 0.5%, after a larger 0.7% increase in the fourth quarter. Overall spending on P&E increased 10.4% in the first quarter, following a 0.9% decline in the fourth quarter.

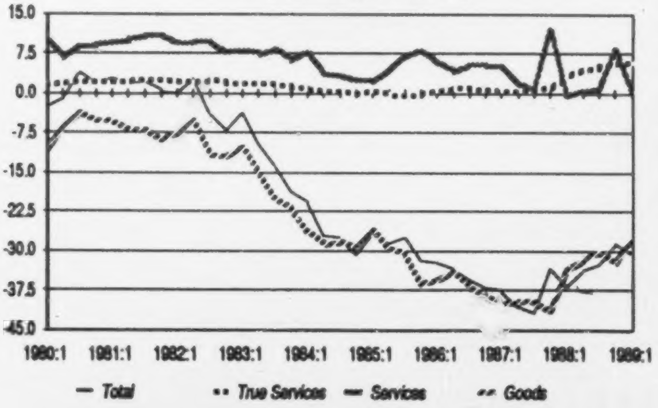
Chart 5
Corporate Profits For Domestic Industries
(Total and by Sector, Indices, 1980:1 = 1.0)



Service Sector Profits Down

In the first quarter of 1989, profits for service industries grew 4.0%, down from a large 15.4% increase in the fourth quarter. Profits for goods industries also slowed to a 2.1% growth rate, compared to an 18.1% increase in the previous quarter. Corporate profits of all industries declined to a 3.1% growth rate, following a 16.7% gain in the previous quarter.

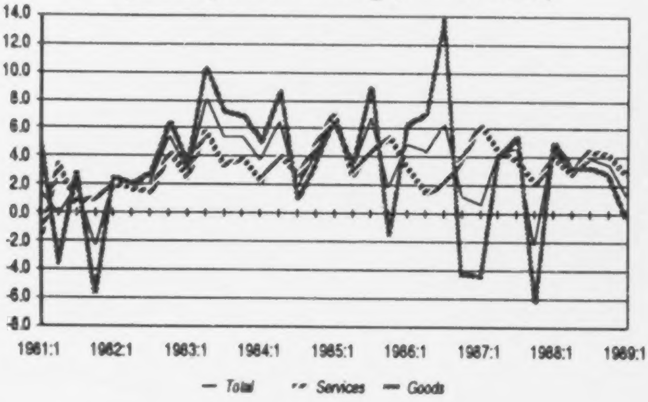
Chart 6
Current Account Balance and Components
(Billions of Dollars)



Surplus in Service Balance Declines

The total services trade balance showed a $369 million surplus in the first quarter, declining $8.0 billion from the previous quarter. The surplus on the true service balance decreased $135 million to $5.7 billion, from a $5.8 billion surplus in the fourth quarter.

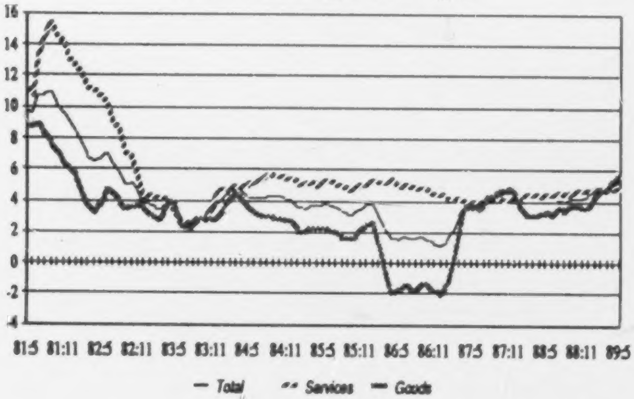
Chart 7
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Down

In the first quarter of 1989, personal consumption expenditures on services slowed to an inflation-adjusted rate of 2.7%, down from a 4.1% growth rate in the previous quarter, while spending on goods declined 0.1% from a year earlier, after a 2.8% year-over-year rise in the fourth quarter. The increase in total consumption was 1.3%—the smallest since the fourth quarter of 1987.

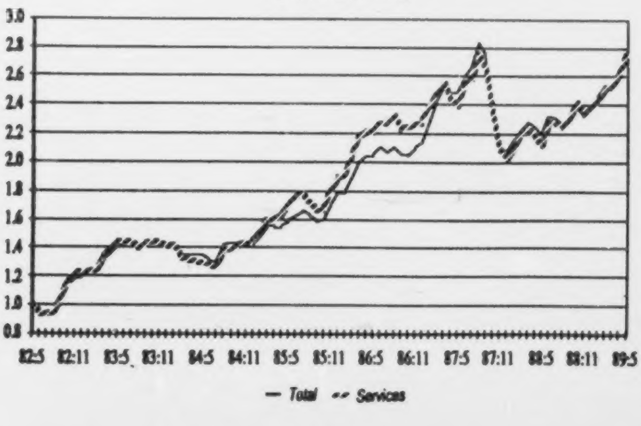
Chart 8
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Remains High

The year-over-year price increase in the service component of the Consumer Price Index (CPI-U) for May remained essentially unchanged from April (4.9%) at 5.0%. The year-over-year increase in the goods component of the CPI-U rose to 5.8%, from 5.4% in the previous month. In May, the overall CPI-U increased 5.4%, following an increase of 5.1% in April.

Chart 9
S&P 500 and Services Stock Price Indices
(1982:5= 1.0)



Stock Prices Rise

In May, the services stock price index and the S&P 500 rose to 5.4% and 3.9%, respectively, following rises of 4.1% and 3.3% in April. The May increases in stock prices were the largest since June 1986.

The Services Stock Price Index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

SPENDING ON SERVICES: CYCLICALITY AND TREND

By Allen Sinai and Michael Drury

It is widely recognized that spending on services is increasing in the United States and in other advanced economic nations, as consumers attain more buying power. Yet, during a recession when buying power falls, spending on services is the area that suffers the least.

How is this paradox explained? Can the general rise in consumption of services and the lack of cyclicality be expected to continue in a downturn in the business cycle? Which areas of services spending exhibit the greatest stability? Which spending categories will grow the fastest as income rises?

Spending on services, which already accounts for 54% of total consumption in the U.S., is expected to continue to outstrip the overall rise in consumption for the forseeable future—with spending on recreational services, religious and welfare activities, and medical care among the fastest growing sectors. Spending in the personal care and household operations service sectors are expected to grow more slowly than total spending, as consumers shift to greater use of competing goods developed for in-home use.

During periods of economic weakness, spending on services is also likely to remain stable, with essentials such as housing, household operations and medical care displaying the least cyclicality. However, as disposable income decreases, discretionary spending on big ticket items such as hotel lodgings, airfare or car rental will probably soften.

What Makes Services Spending Rise?

Rising incomes, demographic trends such as the graying of America, and the higher inflation rate in services due to the greater use of labor in their production, have all been partially responsible for the steady rise in the share of consumption going to services. Since the economic peak in the third quarter of 1960, services share of nominal spending has risen 13.8 percentage points to 54% of overall consumption. This rise in service spending has been largely at the expense of nondurables consumption. Adjusting for inflation dampens the gain to 5.8 percentage points, leaving services consumption at 49.8% of total consumer outlays.

As incomes have risen in the United States, consumers have had more income for discretionary consumption. Spending on basic necessities such as food, fuel and clothing has not kept pace with income growth, reducing the share of consumption going to nondurables by 14 percentage points, to 32.4%. After allowing for the effects of inflation, the decline in nondurables share has been 11.5 percentage points, to 34.6%.

Growth in the share of nominal spending going to durables purchases has been held in check as advancing technology and the availability of less expensive labor abroad have yielded declining prices for a broad range of discretionary durables purchases such as televisions, VCRs, microwave ovens and personal computers. Durable goods share of nominal spending has risen only a modest 0.3 percentage points over the last twenty-nine years. In inflation-adjusted terms, durable's share of consumption has risen faster, up 5.7 percentage points, to 15.6%.

Allen Sinai is Chief Economist and Michael Drury, Senior Economist, of The Boston Company Economic Advisors, Inc.

Demographics and Inflation Boost Services Share

Table 1
Shares of ConsumerSpending

	60:2	69:4	73:4	80:1	81:3	89:1	Change 60:2 to 89:1
Durables	13.3	14.1	14.2	13.4	12.7	13.6	0.3
Nondurables	46.4	42.1	41.1	39.4	38.4	32.4	-14.0
Services	40.3	43.8	44.8	47.3	48.9	54.0	13.8
Housing	14.4	14.6	14.8	14.9	15.4	15.5	1.1
Medical Care	5.0	6.9	7.7	9.2	10.2	13.0	8.1
Personal Business	4.4	5.0	5.0	5.6	5.4	7.2	2.8
Household Operations	6.1	5.9	6.0	6.4	6.7	5.9	-0.2
Transporation	3.3	3.6	3.7	3.8	3.5	3.7	0.4
Recreation	2.0	2.2	2.3	2.4	2.7	3.1	1.0
Religious & Welfare	1.6	1.9	1.9	2.1	2.1	2.3	0.7
Education & Research	1.2	1.6	1.6	1.5	1.6	1.8	0.6
Personal Care	1.9	1.7	1.4	1.2	1.2	1.3	-0.7
Net foreign Travel	0.4	0.4	0.4	0.2	0.1	0.3	-0.1
Adjusted for Inflation							
Durables	9.9	11.3	12.7	12.9	12.6	15.6	5.7
Nondurables	46.1	42.2	40.3	38.1	37.6	34.6	-11.5
Services	44.0	46.5	47.0	49.0	49.8	49.8	5.8
Housing	13.8	14.4	14.9	15.4	15.7	14.1	0.3
Medical Care	6.7	7.9	8.7	9.8	10.5	11.1	4.5
Personal Business	5.5	5.5	5.2	5.6	5.4	5.8	0.3
Household Operations	6.8	6.9	6.7	7.0	7.0	6.2	-0.6
Transporation	3.7	4.0	4.0	4.0	3.6	3.6	-0.1
Recreation	1.9	1.8	1.9	2.3	2.7	3.1	1.2
Religious & Welfare	1.7	2.0	2.0	2.1	2.1	2.4	0.7
Education & Research	1.5	1.8	1.7	1.6	1.6	1.8	0.3
Personal Care	2.2	1.9	1.6	1.3	1.2	1.2	-1.0
Net foreign Travel	0.3	0.4	0.2	0.0	0.0	0.4	0.1

Source: Department of Commerce, The Boston Company Economic Advisors, Inc.

The fastest growing area of services consumption over the past twenty-nine years has been spending on medical care. Technological advances and the development of universal coverage programs through company-sponsored health insurance and federal programs, such as Medicaid and Medicare, have made even the most sophisticated medical procedures readily available to the public. Though most spending under these programs is counted as federal expenditures, not consumer spending, the advance in medical knowledge, funded in part by federal spending, has resulted in a huge private market for medical services.

Moreover, in the past fifteen years, the rapid rise in income among the elderly—again due to federal programs such as social security and supplementary security income—has given the group most likely to purchase medical services the wherewithal to do so. Since the economic peak in 1973, improvements in federal support have helped boost incomes for persons over 65 years at a faster rate than any other age group.

Housing, another key area of services expenditures, (and to a lesser extent household operations) has been driven over the past twenty-nine years by the demographic wave of the baby boom. As children borne in the late 1940s, at the leading edge of the boom, began to leave home in the mid-1960s, they drove up demand for housing and shelter-related services much faster than other areas of consumption. In 1960, housing accounted for 14.4% of total consumption, while in 1981 this share climbed to 15.5%.

Yet, the baby boomers' demand for housing (measured in units, rather than dollars) began to ebb after the cyclical peak in 1981:3. This downtrend in unit demand has been a key factor in the lack of growth in services share of inflation-adjusted spending since 1980. The continuing rise in services share of dollar expenditures reflects the fact that housing services have experienced a rapid rate of inflation, with prices rising at an average 5% during the current economic expansion.

At the same time, a high rate of inflation has also boosted sharply the share of total spending going to medical care and personal business. The personal business sector has enjoyed a hefty 2.4 percentage point rise in its share of total consumption since 1981:3. Yet, after adjusting for the

5.1% annual inflation rate in the 1980s—the fastest of any consumption sector—the increase in share is a modest 0.4 percentage points. For medical care, the adjustment for inflation cuts the gain in share from 2.8 percentage points to only 0.6 percentage points.

Competition Between Goods and Services

In addition to rising incomes, changes in services share of spending is determined by the ongoing competition between goods and services for consumers dollars. This interplay is well illustrated by two sectors of services spending: entertainment expenditures, one of the fastest rising areas of services spending; and personal care, historically the weakest service sector.

After increasing at a modest pace for most of the postwar period, the share of consumer spending going to recreational services has jumped substantially during the 1980s from 2.4% of consumption to 3.1%. The recent rapid expansion reflects the evolution of a trend begun after the Second World War when visits to movie theaters were replaced by television sets in many American homes. New technologies such as video cassette recorders have now led to the growing importance of services like cable TV and movie cassette rentals.

Spending on personal care services such as beauty salons, barbers and spas, has been declining fairly steadily throughout the postwar period, falling from 1.9% of all consumption in 1960:2 to 1.2% in 1981:3. A modest recovery to 1.3% of spending has occurred in the 1980s as greater concern for self-image has increased the use of health clubs.

Both of these sectors reveal that it is convenience and selection that the consumer is most interested in, regardless of whether it is delivered by a service purveyor or by a good. Services have traditionally been able to address these interests more effectively, since the small size of many service organizations and their knowledge of local markets allows them to adapt more quickly to customers' needs or specialized requests. However, the cost of specialization and greater use of labor has been a generally higher rate of inflation for service products than for goods.

Nevertheless, growing competition among goods producers, as well as among service purveyors, has influenced many manufacturers to increase the service content in their finished products. Many goods producers now involve key clients in the design stage of new products or sacrifice the economies of scale inherent in mass production in order to produce smaller numbers of a unique product for customers. The cost may be higher for such specialized design, but manufacturers are also learning that profit margins can be fatter when customers get precisely what they want.

Why Services Consumption is Less Cyclical

Though spending on services tends to rise along with incomes, services consumption does not fall as quickly—if at all—during economic downturns. This paradox occurs in large part because services are often essential or nondeferrable, while consumers generally perceive that income loss during a recession is only temporary.

Durables purchases, which by definition can generally be deferred, take the brunt of the decline in income—and subsequently the bulk of the upturn when the income stream is restored. On average, during recessions purchases of durable goods, after adjustment for inflation, have fallen at a 7.5% annual rate—a huge 12.5% below the long-run growth trend for the sector.

Unlike durable goods, many services cannot be stored and purchases are generally not deferable for long periods of time. As a result, the growth in spending on services remains virtually the same in times of economic weakness and strength. Even after adjusting for inflation the growth in services consumption during recessions is only a modest 1.5% slower than the long-term rate of growth.

Yet, the stability in overall services consumption belies the diversity in the behavior of various services sectors. Basic services such as housing, household operations and medical care are so essential that consumption actually grows faster during periods of economic weakness. Since 1960, when most economic cycles have ended with accelerating inflation, unit demand for these essential services has not been cut back as quickly as prices increased. This is particularly true in the household operations sector, where natural gas and electricity prices skyrocketed during the recessions of the 1970s and 1980s. The resultant increase in actual outlays for essential services exacerbates the need to decrease spending in other areas.

Recreation, a relatively discretionary spending category, also exhibits higher spending growth during periods of economic weakness. As households cut back on big ticket items such as travel or a new car, they often reward themselves with less expensive forms of entertainment such as a movie or a night out bowling. This substitution dampens the slowdown in growth in recreational services to only 0.9% less than trend, while a 2% average increase in prices during the recession boosts total outlays.

Table 2
Growth in Consumer Spending in Recessions vs. Trend

	Actual Spending			Inflation Adjusted Spending			Inflation		
	Growth During Recessions	Trend Growth 1961 to 1989	Difference Between Trend & Recession	Growth During Recessions	Trend Growth 1961 to 1989	Difference Between Trend & Recession	Growth During Recessions	Trend Growth 1961 to 1989	Difference Between Trend & Recession
Consumption	6.5	8.4	1.9	0.2	3.4	3.2	6.3	4.9	-1.4
Durables	-3.0	8.5	11.5	-7.5	5.1	12.5	4.9	3.3	-1.6
Nondurables	6.2	7.1	0.8	0.1	2.4	2.3	6.2	4.6	-1.6
Services	9.6	9.5	-0.1	2.3	3.8	1.5	7.2	5.5	-1.7
Housing	8.9	8.7	-0.3	2.9	3.5	0.6	6.0	5.0	-0.9
Medical Care	12.8	12.1	-0.7	4.0	5.3	1.2	8.4	6.5	-1.9
Personal Business	10.2	10.3	0.0	3.2	3.6	0.4	7.0	6.5	-0.5
Household Operations	10.0	8.3	-1.7	1.4	3.1	1.7	8.5	5.1	-3.4
Transporation	6.4	8.8	2.4	-2.2	3.3	5.5	8.9	5.3	-3.6
Recreation	11.1	9.9	-1.2	4.3	5.2	0.9	6.5	4.5	-2.0
Religious & Welfare	6.9	9.9	2.9	0.4	4.6	4.2	6.5	5.0	-1.5
Education & Research	9.2	10.1	0.8	1.9	4.0	2.2	7.3	5.8	-1.4
Personal Care	4.7	6.8	2.1	-1.8	1.3	3.1	6.7	5.4	-1.3

Source: Department of Commerce, The Boston Company Economic Advisors, Inc.

Furthermore, services such as medical care, personal business and education are most heavily purchased by households which are less likely to be affected by a downturn in income during a recession. Medical care services are used most by the elderly, many of whom are living on pensions and social security. Educational services are largely purchased by individuals under 25, many of whom are not in the job market or are part-time workers. Even those who are employed earn far less on average than older workers, and thus have only a moderate impact on overall consumption. Personal business services, especially items such as brokerage and other financial services are more likely to be used by higher-income households, which generally experience less unemployment and volatility in income than the general public.

Some Services are Not Recession Proof

Not all services sectors are immune from the effects of a recession, however. Services such as transportation, religious and welfare activities, and personal care experience distinctly slower growth during periods of economic weakness. Yet, these three sectors accounted for just 7.3% of total consumption in 1989, while services with little cyclicality represent 46.7% of total consumer spending.

Spending on religious and welfare services slows the greatest of any services sector as contributions to such organizations are curtailed in favor of savings and essential spending at home.

Personal care services, such as hair and skin care, while usually not deferred, can be performed at home using the plethora of products available in the market.

Transportation services have experienced both the highest average inflation rate during recent recessions, due to rapidly rising fuel costs, and the greatest slowdown in unit demand of any services sector. Slower growth in inter-city travel is the key reason. Air travel and car rentals are hardest hit, with spending on bus and rail travel buoyed by consumers searching for a less expensive means of transportation. Weaker growth in transportation services expenditures associated with the purchase of a new car, such as higher insurance premiums, are generally offset by greater expenditures for maintenance and repair on existing vehicles.

Services Share Likely to Grow Steadily

The ongoing rise in consumer incomes and the greater ability of service purveyors to adapt to the varying demands of the public for convenience and selection suggests that services will continue to grow as a share of total consumer outlays—particularly in discretionary services. As the baby boom moves into middle-age, however, less growth will occur in housing and household operations. Yet, the surge in the number of older Americans implies that medical care will remain one of the fastest growing service industries.

The relative stability of services spending during economic downturns is also expected to continue given the essential nature of many services, the small share of such purchases which are deferrable, and the large share of many services which are purchased by groups with limited exposure to the effects of a recession. Yet, as services account for a growing share of total consumption, the rising share of expenditures going to discretionary services should result in somewhat more volatility in total services spending.

Table 1
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1987:4	1988:1	1988:2	1988:3	1988:4	1989:1	1984	1985	1986	1987	1988
Gross National Product	3923.0	3956.1	3985.2	4009.4	4033.4	4077.5	3501.4	3618.7	3721.7	3847.0	3996.0
Services	1822.3	1833.4	1846.1	1862.8	1879.2	1886.5	1625.1	1684.4	1738.1	1801.1	1855.4
Goods and Construction	2100.6	2122.7	2139.1	2146.7	2154.2	2191.0	1876.2	1934.5	1983.7	2045.9	2140.7
Construction	386.7	374.6	376.7	377.7	384.6	381.4	367.1	380.8	384.7	382.6	378.4
GNP—Product Measure	NA	NA	NA	NA	NA	NA	3501.4	3618.7	3721.7	3847.0	3996.0
Services	NA	NA	NA	NA	NA	NA	2312.0	2407.8	2498.9	2595.4	NA
Goods	NA	NA	NA	NA	NA	NA	1132.3	1176.1	1190.6	1228.9	NA
Manufacturing	NA	NA	NA	NA	NA	NA	757.9	786.8	804.6	839.5	NA
Agri./Mining/Construction	NA	NA	NA	NA	NA	NA	374.4	389.3	386.0	389.4	NA
Consumption Expenditures	2531.7	2559.8	2579.0	2603.8	2626.2	2634.9	2249.3	2354.8	2455.2	2520.9	2592.2
Services	1253.6	1265.9	1274.8	1288.9	1302.2	1311.1	1100.3	1152.3	1190.7	1239.5	1283.0
Goods	1278.1	1293.8	1304.2	1314.9	1324.0	1323.8	1149.0	1202.5	1264.5	1281.5	1309.2
Plant and Equipment Expenditures	403.0	408.9	424.1	4314.	430.4	441.6	358.0	391.6	376.3	384.9	423.7
Services Industries	236.9	236.4	248.2	249.7	248.5	259.4	193.6	213.7	219.7	226.3	245.7
Goods Industries	166.2	172.5	175.8	181.7	182.0	182.2	164.4	177.9	156.6	158.6	178.0
Corporate Profits—Billions of Dollars	222.2	236.6	243.1	243.8	259.2	243.9	203.2	191.4	212.8	222.3	245.7
Service Industries	120.5	126.0	128.6	132.4	139.1	131.0	114.4	111.7	133.4	125.4	131.5
Goods Industries	101.7	110.6	114.5	111.4	120.1	112.9	88.8	79.7	79.4	96.8	114.1
Current Account Balance—Quarterly rates	-33.5	-37.0	-33.8	-32.6	-28.7	-30.7	-107.1	-115.1	-138.8	-154.0	-132.1
Services Balance	12.0	-0.4	0.4	0.9	8.4	0.4	17.5	22.1	21.0	19.8	9.3
True Services Balance *	1.2	3.3	4.6	5.3	5.8	5.7	2.0	0.4	3.3	3.1	7.8
Merchandise Trade Balance	-41.2	-33.4	-31.4	-30.3	-32.0	-27.6	-112.5	-122.1	-144.5	-160.3	-127.2

* *True Services Balance is the balance on Service exports and imports excluding receipts and payments on investments and government transactions.*

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1987:4	1988:1	1988:2	1988:3	1988:4	1989:1	1984	1985	1986	1987	1988
Gross National Product	6.0	3.4	2.9	2.4	2.4	4.4	6.8	3.4	2.8	3.4	3.9
Services	3.5	2.4	2.8	3.6	3.5	1.6	2.5	3.6	3.2	3.6	3.0
Goods and Construction	8.2	4.2	3.1	1.4	1.4	6.8	10.8	3.1	2.5	3.1	4.6
Construction	5.9	-12.5	2.2	1.1	7.3	-3.3	12.4	3.7	1.0	-0.5	-1.1
GNP—Product Measure	NA	NA	NA	NA	NA	NA	6.8	3.4	2.8	3.4	3.9
Services	NA	NA	NA	NA	NA	NA	5.4	4.1	3.8	3.9	NA
Goods	NA	NA	NA	NA	NA	NA	10.7	3.9	1.2	3.2	NA
Manufacturing	NA	NA	NA	NA	NA	NA	12.2	3.8	2.3	4.3	NA
Agric./Mining/Construction	NA	NA	NA	NA	NA	NA	7.8	4.0	-0.8	0.9	NA
Consumption Expenditures	-2.1	4.4	3.0	3.8	3.4	1.3	4.8	4.7	4.3	2.7	2.8
Services	2.2	3.9	2.8	4.4	4.1	2.7	3.5	4.7	3.3	4.1	3.5
Goods	-6.3	4.9	3.2	3.3	2.8	-0.1	6.1	4.7	5.2	1.3	2.2
Plant and Equipment Expenditures	12.1	5.8	14.8	6.9	-0.9	10.4	16.6	9.4	-3.9	2.3	10.1
Services Industries	13.7	-0.8	20.0	2.4	-2.0	17.7	13.6	10.4	2.8	3.0	8.6
Goods Industries	9.9	15.2	7.7	13.2	0.7	0.5	20.3	8.2	-12.0	1.2	12.3
Corporate Profits %Change, Year-Over-Year	4.9	11.1	10.9	3.9	16.7	3.1	22.0	-5.8	11.1	4.5	10.5
Service Industries	-2.9	-1.7	2.6	3.8	15.4	4.0	18.7	-2.4	19.4	-6.0	4.9
Goods Industries	16.0	30.4	22.1	4.1	18.1	2.1	26.5	-10.3	-0.4	22.0	17.9

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Monthly Indicators)

	1988:12	1989:1	1989:2	1989:3	1989:4	1989:5	1984	1985	1986	1987	1988
Total Employment— Millions of Persons	107.1	107.4	107.7	107.9	108.1	108.2	94.5	97.5	99.5	102.3	105.6
Service Industries	81.6	81.8	82.1	82.2	82.4	82.6	69.8	72.7	75.0	77.5	80.3
Goods Industries	25.5	25.6	25.6	25.6	25.7	25.6	24.7	24.9	24.6	24.8	25.2
Total Compensation— Billions of Dollars	2529.5	2559.2	2571.2	2593.6	2611.2	2616.1	1838.6	1975.4	2094.0	2248.4	2436.9
Services	754.6	764.0	768.6	775.3	786.0	787.2	472.1	521.2	575.9	646.8	716.6
Goods	714.9	722.1	725.2	735.7	732.9	733.2	577.6	608.9	625.5	649.8	695.4
Total Compensation— % Change, Year-Over-Year	7.5	9.3	9.0	9.2	9.1	8.6	9.7	7.4	6.0	7.4	8.4
Services	6.8	11.8	11.6	12.3	12.4	11.5	11.1	10.4	10.5	12.3	10.8
Goods	7.3	7.9	7.7	7.4	7.0	6.6	10.4	5.4	2.7	3.9	7.0
Compensation Per Employee, % Change, Year-Over-Year	4.4	5.7	5.7	6.0	5.9	5.5	4.7	4.1	3.9	4.4	5.0
Services	3.2	8.0	7.9	8.7	8.7	7.9	6.4	6.0	7.1	8.6	6.9
Goods	6.0	5.0	5.2	5.1	4.9	4.7	4.2	4.9	4.0	3.0	5.0
Consumer Price Index—All Urban, % Change, Year-Over-Year	4.4	4.7	4.8	5.0	5.1	5.4	4.3	3.5	1.9	3.7	4.1
Services	4.8	4.9	4.9	5.0	4.9	5.0	5.3	5.1	5.0	4.1	4.6
Goods	3.8	4.3	4.8	4.9	5.4	5.8	3.4	2.1	-1.0	3.2	3.5
Services Leading Indicator Index (%)*	2.9	2.8	1.9	3.1	3.9	3.8	2.3	3.5	4.0	3.0	0.2
Leading Economic Indicator Index—Total (%)*	3.9	4.7	3.1	1.3	2.1	-0.5	2.1	3.3	6.6	5.2	2.2
Services Coincident Indicator Index (%)*	3.3	4.1	3.2	2.4	3.7	2.3	3.7	3.8	3.1	3.5	3.4
Service Industries Stock Price Index	92.9	95.2	98.7	98.5	102.5	108.0	53.0	66.2	86.3	95.4	88.3
S&P 500 Stock Price Index	276.5	285.4	294.0	292.7	302.3	313.9	160.5	186.8	236.3	286.8	265.8

* *Growth Rate expressed in six-month smoothed percent changes at annual rate.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

THE SERVICE ECONOMY is a product of the CSI Task Force on Data Collection and Statistical Improvement. Comments or suggestions should be directed to Maria Eli of CSI, at 202/467-3054.

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THE SERVICE ECONOMY

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MISSING LINKS: THE NEED FOR BETTER DATA ON PURCHASED SERVICES*

Henry Kelly and Andrew Wyckoff

Accurate, complete, and timely statistics are critical tools for effective public policy and business management. The perplexing nature of the economic changes underway in today's economy have, however, increased the difficulty of providing precise measures of change and growth. Some of the difficulties are longstanding. For example, there has always been a need to get a more accurate estimate of the output of the construction industry. Some are old problems that have become much more important as the economy changes; growth in the service sector makes it impossible to ignore flaws in the way services productivity is estimated. And economic change has created some entirely new problems—such as the emergence of complex international production networks, and the need to understand the way information is used as an input in the economy.

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* In response to a request from Congress, in 1988 the Office of Technology Assessment published *Technology and the American Economic Transition* which discussed the relationship between new technologies and growth in the U.S. economy. Research for this project raised many questions about the way data is collected and measured in the United States, and in an attempt to answer some of these questions, OTA published a follow-on study in September 1989 titled *Statistical Needs for a Changing U.S. Economy*—Background Paper, OTA-BP-E58. This article is extracted from that longer report.

Henry Kelly and Andrew Wyckoff are with the Office of Technology Assessment. The views expressed in this article are those of the authors, and do not necessarily reflect the views of the Office of Technology Assessment or any individual members of OTA, its Board or Advisory Council.

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A number of areas have been identified where economic changes have exposed gaps in the statistical system, and where a coordinated response is needed to eliminate these deficiencies. Two of these areas have a direct bearing on service sector statistics:

- Techniques for evaluating real growth in services must be improved. This means developing better methods for recognizing that the quality of education, health care, financial services, software development, and other services can change. Lacking such methods, real growth and productivity change for many services is underestimated, obscuring the innovations that are occurring in these sectors.

- Methods showing the way purchased services are used as an input in the economy, particularly by manufacturing, should be strengthened. By underestimating the real value of purchased services, the contribution of manufacturing operations may be overestimated, masking problems in some industries and leading to a misunderstanding of the value of service industries.

Because there is a general recognition that the first issue is in need of attention, this article will focus on the second point, examining some of the deficiencies associated with statistics on services used as intermediate inputs by other businesses.

Understanding Linkages

Accurately tracing the source of growth in the economy to individual business sectors requires an ability to describe the complex business networks that now operate in virtually every part of the economy. The transformation of the American economy can be seen in the growing complexity of these networks and the service businesses needed for their efficient operation. Understanding the complex patterns of interdependence that result from these networks is critical for understanding the way national policies can affect economic performance. For example, imports that affect manufacturing industries have a strong indirect effect on the service firms that supply these industries. Similarly, in efforts to cut costs or "down size," many firms have begun to specialize and purchase products and services from other specialized firms. Manufacturing firms may, for example, purchase legal, bookkeeping, or janitorial services from outside suppliers rather than performing these activities "in-house." These changes have altered the links that connect one industry to another in the economy.

The basic source of information about the way businesses depend on each other is the input/output (I/O) tables, compiled by the Department of Commerce's Bureau of Economic Analysis (BEA). These tables show what each of 537 industries purchase from other industries. Since so much detailed information is needed, it takes many years to create input/output tables using current methods. The most current "benchmark" table, called a benchmark because it is largely based on quinquennial industrial censuses, not annual surveys, dates to 1977 and was published in 1984. The 1982 benchmark table will not be published until late in 1989. Unless something changes, we will be using the recession year of 1982 as a "benchmark" until 1994.

BEA produces input/output tables for years between benchmarks using a variety of approximation techniques. Although more up-to-date, (the 1983 I/O tables were published this year), the annual input/output accounts suffer from an industrial classification scheme that has a strong manufacturing bias. Of the 85 industries, 52 are dedicated to manufacturing, 15 are services, 12 are in natural resource industries, and 6 are "other." This occurs even though only a fifth of the GNP is attributable to manufacturing. The end result is great detail on the production of wooden boxes, about two-one hundredths of a percent of GNP, while the private health, education, and social service industries, about 8 percent of GNP, are lumped together into one category. Obviously, these classifications present a severe constraint on analysis.

Another limitation of the more timely annual tables is that they are forced to use the 1977 benchmark table as the basis for scaling up to more current years, limiting the ability to track areas where the economy has changed rapidly. Unfortunately these are often precisely the areas where most policy analysis focuses. Difficulties in tracking the role of services is an important example. The fastest growing intermediate input in the economy, and particularly to manufacturing, is the purchase of a group collectively called business services, which includes accounting, advertising, legal help, computer services, and temporary help services. The 1982 input/output table shows business services as the third largest intermediate input to manufacturing—above commodities like steel, rubber, paper, and transportation.

The basic data source on intermediate inputs for the manufacturing sector, the quinquennial Census of Manufacturing, does not collect data on purchased business services. The smaller, sample-based Annual Survey of Manufacturing collects data on only a few purchased services such as repair and communication services once every five years. This means that a number of approximation techniques were used even to establish the benchmark 1977 input/output table. Attempts to scale up from this benchmark to a more recent year are highly approximate.[1] It is extremely difficult to track many technical changes resulting from greater purchases of services by businesses. For example, employment in temporary help agencies (one component of the I/O business services sector) grew by 70 percent from 1982 to 1984. This "out-sourcing" to temporary help agencies for employees has obviously reshaped business networks and affected the difference between sales and value-added contributed by the business, but the impact is almost impossible to trace. The fast growth of business services means that it is likely that they have not been fully accounted for, causing an overestimate of manufacturing's contribution to GNP that has grown in severity recently.[2]

Data on the services used by businesses at the establishment level are difficult for the Bureau of Census to obtain because services like accounting and advertising are often purchased by corporate headquarters while the questionnaires go to individual establishments. The managers in the establishment often do not know how much corporate overhead such as advertising is done in its interest. This problem could be reduced if the information was collected at the headquarters of the firm and then allocated to the firm's individual establishments through an imputation scheme.

The input/output tables are important for many reasons other than computing accurate estimates of value-added in each type of business. The Bureau of Labor Statistics relies on input/output data to generate its industry-level multifactor productivity series, construct the producer price index, and estimate what occupations will be in demand in the future. Input/output is at the heart of the Department of Agriculture's projections of agricultural output and the Department of Energy's estimates of energy use. They are also "...the single most important source for the comprehensive revions of the NIPA's" (the National Income and Product Accounts)—the accounting system used to calculate the GNP and its components such as consumer spending and business investment.[3]

Other nations manage to produce detailed input/output data much faster than we do—though possibly with less accuracy—in part because I/O plays a more fundamental role in policymaking in these countries. Japan already has input/output tables based on data collected in 1985. And the Japanese government is involved in creating an input/output model for a major portion of the international economy. The United Kingdom has a benchmark table for 1984, and China is about to complete a 1987 table.[4]

Computing Business Output by Sector

Each business in a network delivering a final product or service to a consumer adds some value (value-added) to the product. The sum of "value-added" in all businesses in the United States sums to the Gross National Product (GNP). Allocating the GNP by industry or business sector is important for a number of reasons: it is needed to assess rates of innovation and productivity growth in different types of business, it is needed to understand which kinds of economic activity are likely to be the basis for future growth, and it is needed to understand the way businesses operate together as parts of complex production networks.

The input/output tables described above provide the basic tool needed to see how much value each business in the economy contributes in constant dollar terms.[5] The value-added by a business can be computed by subtracting the value of all products (both goods and services) purchased by a business (inputs) from total sales (or gross output). Value-added in constant dollars can be computed by subtracting an industry's intermediate inputs from its output after both have been adjusted for inflation. Doing this with precision requires an enormous amount of high quality data for the entire economy since businesses depend on each other through "intermediate inputs" in complex ways. This technique, called "double-deflation," is recognized as a preferred method by the Department of Commerce because of its use of a consistent set of price indexes.[6] In practice, however, incomplete data mean this technique can only be used in 29 percent of the 1986 GNP—the manufacturing, farm, and construction sectors. Services are a major problem since, as mentioned above, sufficient detail on services used as inputs is lacking even though about two-fifths of all private services are purchased by businesses as intermediate inputs and not by households or the government.

A variety of scaling techniques and other methods are used to compensate. BEA calculates deflators for several service sectors by extrapolation using jobs as a proxy for increases in quantity. By definition, this means that no labor productivity growth can occur, resulting in an overstatement of the rise of prices in this industry and a subsequent underestimate of the quantity of services purchased as inputs.[7] The underestimate of inputs means that the value-added of industries that purchase services as an intermediate input is overstated. Because this value-added by industry data (termed Gross Product Originating) is used by the Bureau of Labor Statistics to calculate business sector productivity, productivity measures for manufacturing are probably overestimated.[8]

BEA has responded to some of the criticisms and has undertaken an effort to revise the constant dollar value-added by industry series. Currently, this revision process involves two steps — a re-examination of the procedure it uses to apportion adjustments among industries, and the inclusion of import prices in deflators. Exploration is underway to improve the timeliness of intermediate purchases of materials and services, but this requires the assistance of other statistical agencies. Although firm conclusions cannot be drawn about biases in the present series until the revised series is available, it appears likely that manufacturing's growth in output from 1979 to 1985 will be revised downward.[9]

Conclusion

New dimensions of growth and change may require fundamentally different approaches to business management. They have also challenged traditional approaches to economic growth policy. The system of gathering statistical data now in place was not designed to support many elements of the analysis that will be needed to rethink traditional growth policies. If nothing else, neither the products nor the inputs of today's complex economy can be measured with the precision possible in a traditional, less sophisticated economy.

While the decentralized system of statistical collection and analysis in the Federal Government has many strengths, the system suffers from the absence of any central organization able to develop a coherent strategy for adjusting to the challenges presented by today's economy—such as the growth of interindustry linkages manifested by the growth of business services. While individual statistical agencies have made efforts to work together and solicit the opinions of data users, the absence of effective leadership has left critical gaps. There is a need for a national, systematic effort to articulate priorities in statistics, match budgets to these priorities, anticipate future needs, translate the complex and often conflicting objectives of data consumers into a practical set of tasks, and to ensure that the work of individual statistical agencies is adequately coordinated.

An adequate response to these challenges also requires coordinated approaches to budgeting and undoubtedly more money. The need for resources, however, can not be established without a clearer view of the needs and priorities of the system taken as a whole. It is clear, however, that the price paid for mistakes in public policy stemming from defects in national statistics can be many times higher than the entire national statistical budget.

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[1] U.S. Department of Commerce, Bureau of Economic Analysis, "Gross Product by Industry: Comments on Recent Criticisms," *Survey of Current Business*, July 1988, p. 132.

[2] See Edward F. Denison, *Estimates of Productivity Change by Industry*, (Washington, DC: The Brookings Institution), 1989, p. 47.

[3] Carol S. Carson, "GNP: An Overview of Source Data and Estimating Methods," *Survey of Current Business*, July 1987, p. 112.

[4] M. Sato, Japan's Ministry of International Trade and Industry, "Compilation of an International Input-Output Table," Paper Presented at the OECD Workshop on International I-O Tables and Performance Analysis of Structural Adjustment, Dec. 14, 1988, Paris, France.

[5] "Gross Product by Industry: Comments on Recent Criticisms," op. cit., p. 132.

[6] Milo Peterson, "Gross Product by Industry," *Survey of Current Business*, Vol. 67, No. 4, April 1987, p. 27.

[7] Denison, op. cit., p. 52.

[8] See Denison, op. cit., p. 58; John W. Kendrick, "Service Sector Productivity, *Business Economics*, April 1987, p. 23; Martin N. Baily and Robert J. Gordon,"The Productivity Slowdown, Measurement Issues, and the Explosion of Computer Power," *Brookings Papers on Economic Activity*, Vol. 2, 1988, p. 420.

[9] See "Gross Product by Industry: Comments on Recent Criticisms," op. cit., p. 133; Lawrence R. Mishel, "Manufacturing Numbers: How Inaccurate Statistics Conceal U.S. Industrial Decline," (Washington, DC: Economic Policy Institute, April 1988), p. 40; Baily and Gordon, op. cit., p. 367; and Denison, op. cit., p. 23 and p. 37.

In September 1989, the Office of Technology Assessment (OTA) published a report titled Statistical Needs for a Changing Economy, which identifies many of the weaknesses in the U.S. statistical system and describes the impact these deficiencies have on economic policy analysis. The preceding article examines only one of several issues discussed in the full report.

While acknowledging that U.S. government statistics are among the best in the world, OTA found that a "lack of effective coordination and management" among government agencies has contributed to inefficiency and the absence of national priorities to improve data collection. In particular, present methods are not keeping pace with new technologies and the growth of the service economy, while budget restrictions hamper the expansion of existing data. Although improvements are underway (see Allen Sinai's article later in this issue), there is no government body or agency providing the guidance necessary to formulate long-term policy for the system as a whole.

OTA undertook the study at the request of the Subcommittee on Government Information and Regulation of the Senate Committee on Governmental Affairs, chaired by Senator Jeff Bingaman (D-NM). The Coalition of Service Industries commends the Subcommittee and Senator Bingaman for initiating this examination into ways to improve economic policy analysis, and urges the Congress to implement programs that will close some of the data gaps.

The project staff for Statistical Needs for a Changing Economy included Lionel S. Johns, Assistant Director, OTA Energy, Materials and International Security Division, Peter D. Blair, Energy and Materials Program Manager, Dr. Henry Kelly, Project Director, and Andrew Wyckoff, Analyst. The complete text of the report is available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402-9325.

The Coalition of Service Industries

SERVICES ECONOMIC HIGHLIGHTS

Allen Sinai
Chief Economist, Boston Company Economic Advisors, Inc.

Services At a Glance

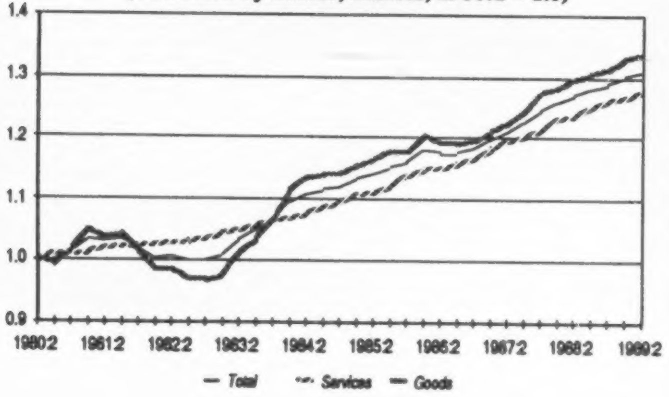
- ***Services GNP Measured by Expenditures***—or the service component of expenditures by consumers, businesses, government and the net service export balance—increased to a 3.1% growth rate in the second quarter compared to the 1.8% rate in the first quarter.
- The ***Service Sector Leading Index***—which leads the sector's activity by about six months—rose 4.2% in August, following an equally strong 4.3% increase in July. The annual growth rate of the coincident index, reflecting current economic conditions for the service sector, was 2.8%.
- ***Employment*** in service industries continues to grow. In September, service sector employment increased by 317,000 persons, and was up 2.6 million persons from the previous year.
- ***Services Investment*** slowed in the second quarter, to an 8.4% increase from the previous quarter, compared to a large 31.5% increase in the first quarter. Overall investment increased 10.8%, down from 20.9% in the first quarter.
- ***Personal Consumption Expenditures*** maintained strong growth in the second quarter and increased 3.8% from the first quarter, while personal consumption of goods slowed to a 0.1% growth rate.
- ***Prices of Consumer Services*** for August increased 5.1% from the level a year earlier and were unchanged from July's increase.
- The ***Stock Price Index*** for services rose 4.6% at an annual rate in August, following a 4.4% increase in July.
- ***Profits in Service Industries*** climbed 14.8% in the second quarter, after a 24.6% decline in the first quarter.
- ***True Services Exports*** increased by $765 million, bringing the total for the second quarter to a record high $25.9 billion. The surplus on net true service exports also reached a record $6.8 billion for the quarter.

Bottom Line: As demonstrated by recent data on consumption and employment, the service sector was strong in the first half of the year and should continue this trend through the first part of 1990.

The Service Economy refers to the total economy, in which the Service Sector is the dominant factor. The Service Sector represents 68% of real production GNP and 76% of employment. Major segments are: Communications; Transportation; Public Utilities; Finance, Insurance and Real Estate; Wholesale and Retail Trade; Government; and "Service," a diverse category including Business Services, Personal Services and Health Services.

The Service Economy at a Glance

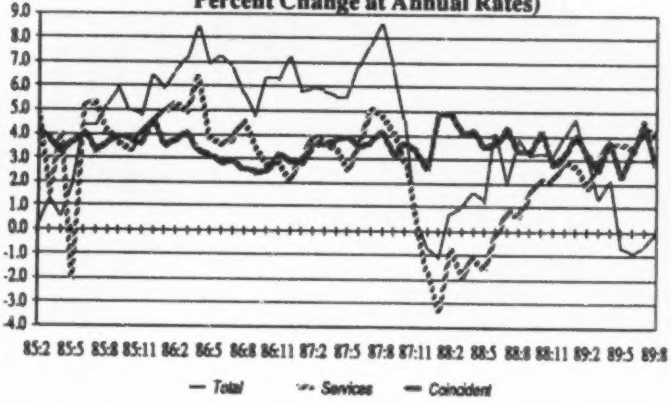
Chart 1
Real Gross National Product
(Total and by Sector, Indices, 1980:2 = 1.0)



Services GNP up 3.1%

In the second quarter of 1989, services GNP—measured by expenditures—increased 3.1% from the previous quarter, up from 1.8% in the first quarter. The goods component, including construction, slowed to a 2% rate, compared to a 5.4% growth rate in the first quarter. Goods less construction GNP rose 4.6%. Total GNP rose 2.5%—the smallest increase since the fourth quarter of 1986.

Chart 2
Leading Economic Indicator Indices
(Total Economy and Service Sector, Six-Month Smoothed, Percent Change at Annual Rates)

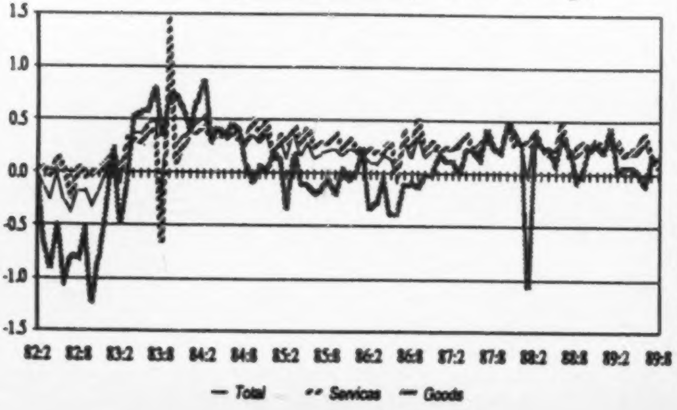


Services Leading Index Signals Continued Growth

In August, the leading index for services rose to 4.2%, following a 4.3% increase in the previous month. The coincident index for services slowed to a 2.8% growth rate, after a 4.6% increase in July. The leading indicator index for the whole economy showed a small 0.1% decline, following declines in the previous three months.

The Service Sector Indices are produced by the Center for International Business Cycle Research, Columbia University.

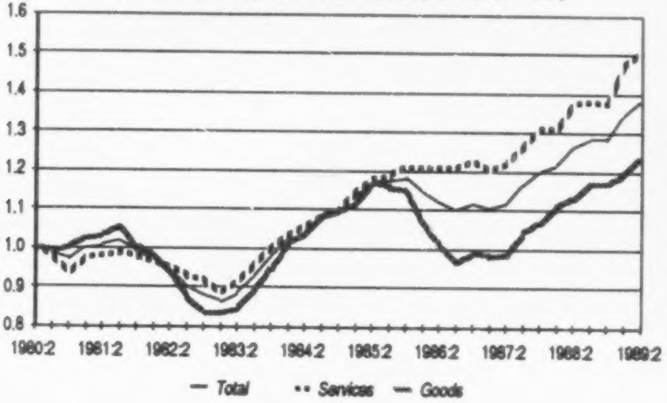
Chart 3
Employment Growth
(Total and by Sector, Monthly Percent Change)



Service Sector Employment Continues to Rise

Employment in the service sector continues to grow. In September, service sector employment grew by 317,000 persons bringing the year-to-date service employees to 82.7 million persons, up 2.7 million persons from the corresponding period a year earlier. Employment in the goods sector declined by 108,000 persons in September, following a 27,000 person increase in August.

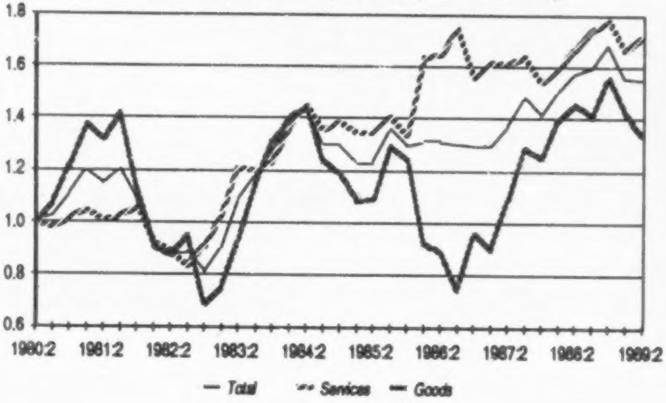
Chart 4
Real Expenditure on Plant and Equipment
(Total and by Sector, Indices, 1980:2 = 1.0)



Services Investment Slows

In the second quarter, real expenditures on Plant and Equipment (P&E) by service industries increased 8.4%, compared to a 31.5% increase in the previous quarter. Goods industries increased real expenditures on P&E 14.4%, following a 7.5% increase in the first quarter. Overall spending on P&E increased 10.8%, slower than the 20.9% increase in the first three months of the year.

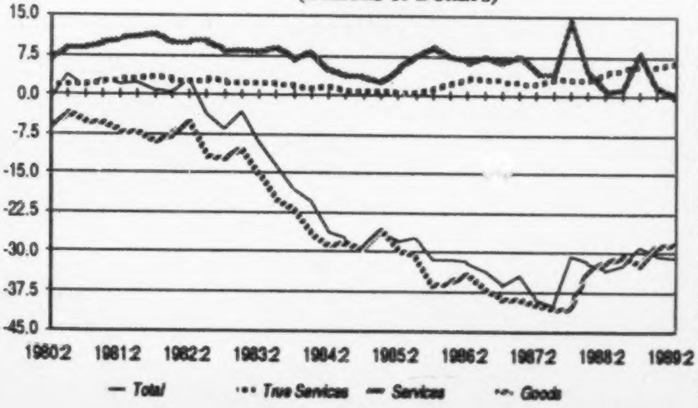
Chart 5
Corporate Profits For Domestic Industries
(Total and by Sector, Indices, 1980:2 = 1.0)



Service Sector Profits up 14.8%

Profits of service industries increased 14.8%, in the second quarter, following a decline of 24.6% in the first three months of the year. Profits in the goods sector continued to decrease. In the second quarter, goods profits declined 23.3%, following a decline of 30% in the first quarter. Corporate profits for all industries declined 7.7%, compared to the 37% decline in the previous quarter.

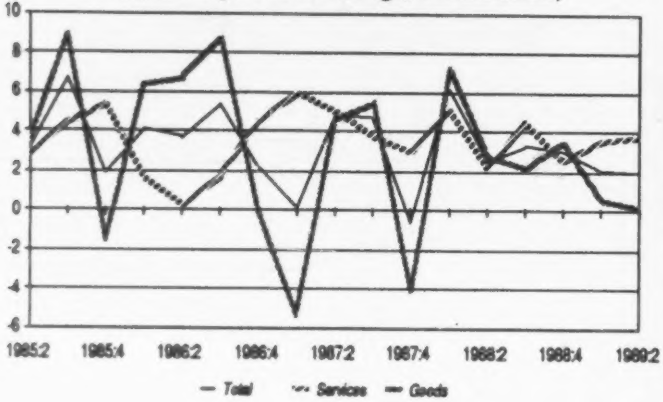
Chart 6
Current Account Balance and Components
(Billions of Dollars)



True Services Surplus Posts Record-High

The true services balance reached a record high $6.8 billion surplus in the second quarter, up from a $5.7 billion surplus in the first quarter. The investment income balance was in deficit by $3.5 billion while the merchandise trade deficit improved to $27.7 billion from $28.4 billion in the first quarter. The overall current account deficit worsened to $31 billion from $30.4 billion in the first quarter.

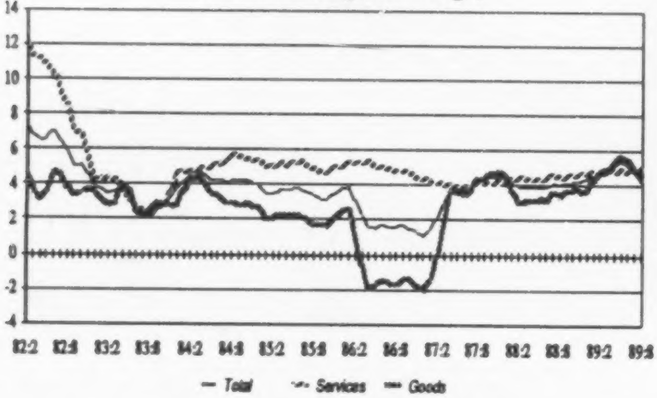
Chart 7
Real Personal Consumption Expenditures
(Quarterly Percent Change, Annual Rates)



Spending on Services Remains High

In the second quarter of 1989, personal consumption expenditure on services increased an inflation-adjusted 3.8%, following an equally strong 3.6% growth rate in the previous quarter. Spending on goods grew a mere 0.1% from the second quarter, after a small 0.6% increase in the first quarter. The second quarter increase in total consumption was 1.9%.

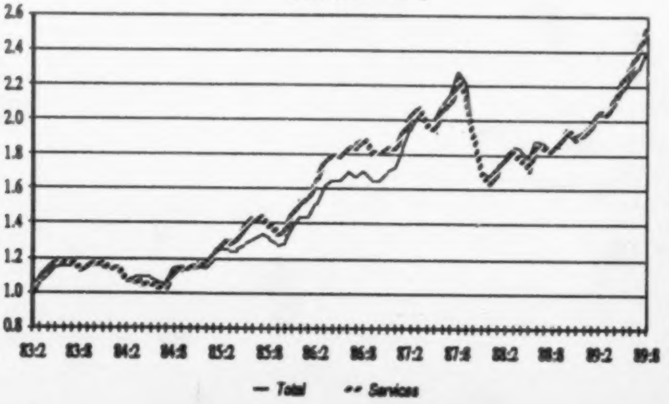
Chart 8
Consumer Price Indices
(Percent Change, Year Ago)



Service Inflation Remains High

The year-over-year price increase in the service component of the Consumer Price Index (CPI-U) for August remained unchanged at 5.1%. The year-over-year increase in the goods component of the CPI-U declined to 4.3%, from 4.9% in the previous month. In August, the overall CPI-U increased 4.7%, following an increase of 5% in July.

Chart 9
S&P 500 and Services Stock Price Indices
(1983:2 = 1.0)



Stock Prices Rise

In August, the services stock price index increased 4.6%, after a 4.4% increase in July. The overall S&P 500 index increased 4.4%, following a 2.5% increase in July. Compared to their year-earlier levels, the services stock price index was 38.7% higher while the S&P 500 index was up 31.4%.

The Services Stock Price Index is based on S&P indices for 13 service industries and is compiled by the Center for International Business Cycle Research.

THE NEW IMPORTANCE OF INTERNATIONAL SERVICE TRANSACTIONS

by Allen Sinai and Zaharo Sofianou

Included in the Commerce Department's June release of U.S. international transactions were major revisions and additions to services exports and imports—the result of a 1986 benchmark survey and annual follow-up surveys in 1987 and 1988. The data improvements added $22.9 billion of private (or true*) service exports and $11.6 billion in imports to the 1988 figures, more than doubling the private service balance to $19 billion in 1988, from the $7.8 billion previously reported.

As a result of these revisions in the service sector, the United States' current account deficit in 1988 was reduced from $135.3 billion to $126.5 billion. The incorporation of the new service data in the international accounts is a reflection of the growing importance of services trade, not only in the domestic economy, but internationally as well.

The improvements to service data can be classified into two broad categories: 1) revisions within the balance of payments accounts that shifted service exports and imports from other areas to private services, and 2) additions to the service accounts that resulted from better recording of existing categories, or as a result of new categories previously not measured at all. And it is new data that accounts for the bulk of the additions to the services transactions. In 1988, additions to private service trade accounted for $20 billion of exports and $11.1 billion of imports. Shifts within the balance of payments added $2.9 billion to service exports and $514 million to service imports.

Table 1 shows how the various service areas were affected by the changes in 1988. The areas that gained most were travel, and "other private services," a category that includes education, financial services, and business, professional and technical services.

Travel and Passenger Fares

Foreign tourist expenditures in the United States and payments of transportation fares to U.S. carriers are service exports for the United States, while expenditures by U.S. residents abroad and on foreign carriers are U.S. service imports.

In 1988, receipts from foreign travellers in the United States were revised up $10.8 billion, while expenditures by U.S. residents abroad increased an equally large $9 billion. Including the revisions from the passenger fare account, overall total tourist expenditures were revised up $12.4 billion for exports and $7.8 billion for imports (payments by U.S. residents on foreign carriers were revised down $1.2 billion). As a result, the U.S. deficit on the travel account was reduced from $4.7 billion to $2.9 billion, while the $1.8 billion deficit on the passenger fare account turned into a $1

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* True Services, or priviate services as they are called here, are service exports and imports excluding receipts and payments on investments and government transactions.

Allen Sinai is Chief Economist and Zaharo Sofianou, Senior Economist, of The Boston Company Economic Advisors, Inc.

Table 1
Total Private Service Exports and Imports in 1988
(Before and After Additions and Revisions, Billions of Dollars)

	Exports			Imports			Service Balance		
	Previous	Current	Difference	Previous	Current	Difference	Previous	Current	Difference
Travel	18.4	29.2	10.8	23.1	32.1	9.0	-4.7	-2.9	1.8
Passenger Fares	7.3	8.9	1.6	9.1	7.9	-1.2	-1.8	1.0	2.8
Other Transportation	19.3	18.9	-0.4	19.8	19.6	-0.2	-0.5	-0.7	-0.2
Fees and Royalties	10.1	10.7	0.6	1.6	2.0	0.4	8.5	8.7	0.2
Other Private Services	14.0	24.3	10.3	7.8	11.4	3.6	6.2	12.9	6.7
Education	NA	4.1	4.1	NA	0.6	0.6	NA	3.6	3.6
Financial Services	2.0	3.8	1.9	2.1	1.7	-0.4	-0.1	2.2	2.3
Insurance	0.8	1.6	0.7	1.9	2.8	0.9	-1.1	-1.2	-0.1
Telecommunications	2.0	2.4	0.4	3.7	4.3	0.6	-1.7	-1.9	-0.2
Business Professional, and Technical Services	1.7	4.8	3.1	NA	1.6	1.6	1.7	3.1	1.4
Other	4.8	4.8	0.1	1.1	1.2	0.1	3.7	3.6	-0.1
Total	69.1	92.0	22.9	61.4	73.0	11.6	7.7	19.0	11.3

Source: Bureau of Economic Analysis and the Boston Company Economic Advisors, Inc.

billion surplus. The revisions to this account were due primarily to the results of a travel survey conducted by the United States Travel and Tourism Administration.

Other Private Services

The second largest area boosted by the recent changes is actually a collection of private services such as education, financial services, insurance, telecommunications, accounting, advertising, legal and medical services, research and development, computer and data processing, installation, maintenance and repair of equipment, and others.

Following the revisions, this category accounted for $24.3 billion of exports in 1988, rather than the $14 billion previously assigned to it. The most notable improvement came from the inclusion of education expenses—an entirely new area as far as U.S. international transactions are concerned. Any expenditures by foreign students in the United States—either on school fees or on living expenses—is a service export by the United States, as long as the money has come from abroad and is not from the student's wages from a job he holds while studying in the United States, or from scholarships from U.S. institutions or government. Similarly, expenditures by U.S. students abroad paid by money from the United States are a U.S. service import. The new information on students was the result of a number of surveys conducted in order to determine the size of the student population, and the types of institutions attended.

It is estimated that foreign students studying in the United States have spent $4.1 billion in fees and living expenses, while U.S. students studying abroad have spent only $0.6 billion, leaving the U.S. with a $3.6 billion surplus on this account. The varying definitions and accounting methods through which these figures are derived, however, may indicate a bigger surplus for the U.S. than actually exists.

For the purposes of the survey a student is defined as anyone who receives academic credit from an accredited institution of higher education. In general, many more American students visit foreign academic institutions for a period of one year or less, returning to the United States for their final degree. The expenditures of students visiting a country for less than a year, or who did not eventually receive credit from a foreign academic institution are classified under tourist payments.

Although education is the area under "other private services" that accounts for the largest single upward revision in exports, other smaller areas have also contributed.

Improved estimates for exports and imports of services classified under "business, professional and technical" services increased exports by $3.1 billion, and imports by $1.6 billion, leaving a surplus of $3.1 billion in 1988, rather than the $1.7 billion surplus previously reported As a result of the increasing volume of trade in this category, the new surveys were broadened to provide a greater degree of detail by type of transaction than was previously reported. This area now includes international transactions of computer and data processing; installation, maintenance and repair of equipment; and management consulting services—none of which were reported in previous accounts.

Other areas showing improved estimates are telecommunications and insurance, although in these two areas the United States has a negative balance with its trading partners, which was made marginally higher by the revised figures. For 1988, exports of telecommunications services were revised up $0.4 billion to $2.4 billion, while imports were revised up $0.6 billion to $4.3 billion, increasing the U.S. deficit in this account by $0.2 billion. Similarly, new estimates for insurance services increased exports by $0.7 billion and imports by $0.9 billion, also widening the U.S. deficit.

The financial services area benefited most from data transfers from other accounts. Prior to the revisions, this area included mostly commissions and fees on securities and commodities transactions. Following the revisions, fees earned by banks such as letters of credit and bankers' acceptances and other noninterest income, were also included under financial services. Previously, these bank fees were not separated from interest income and were included as portfolio income under the investment account, rather than in services.

In 1988, close to $2 billion of noninterest bank income was shifted from investment income to services exports. The $2 billion in fees and other noninterest income does not represent the full amount, however. Additional noninterest income may be shifted to this account from portfolio income at a later date, once bank reporting procedures make it easier to separate the two types of revenues. (Estimates for U.S. payments of noninterest income are not yet available, and as a result this account tends to overestimate the U.S. surplus.)

While the revisions and additions resulting from the new surveys are important, what is more important for the future is the considerable amount of new detail added to service categories. The more precise breakdown of the data demonstrates the growing importantce of international services trade, and facilitates closer investigation of this portion of the economy. Table 2 shows private international service transactions including the newly incorporated information.

Table 2
Private International Service Transactions
(Billions of Dollars, Quarters at Annual Rates, Seasonally Adjusted)

	Exports					Imports					Balance				
	'86	'87	'88	'89:1	'89:2	'86	'87	'88	'89:1	'89:2	'86	'87	'88	'89:1	'89:2
Total Private Services	70.9	79.4	92.1	100.5	103.5	59.3	67.5	73.1	77.5	76.3	11.6	12.0	19.0	23.0	27.2
Travel	20.5	23.5	29.2	31.2	33.1	26.0	29.2	32.1	33.8	32.7	-5.5	-5.7	-2.9	-2.6	0.4
Passenger Fares	5.5	6.9	8.9	10.1	9.4	6.8	7.4	7.9	8.9	8.5	-1.2	-0.5	1.0	1.2	0.9
Other Transportation	15.5	17.0	18.9	20.2	21.1	16.7	18.1	19.6	20.4	20.4	-1.3	-1.1	-0.7	-0.2	0.7
Freight	4.0	4.7	5.3	5.8	6.6	10.7	11.0	11.8	11.4	11.4	-6.7	-6.3	-6.5	-5.6	-4.8
Port Services	10.5	11.6	12.8	13.7	14.1	5.2	6.4	7.1	8.2	8.2	5.3	5.2	5.8	5.4	6.0
Other	1.0	0.7	0.8	0.7	0.8	0.8	0.7	0.7	0.8	0.8	0.2	0.0	0.0	-0.1	-0.1
Royalties and License Fees	7.3	9.1	10.7	11.4	11.8	1.1	1.4	2.0	1.8	1.7	6.2	7.7	8.7	9.6	10.1
Affiliated, Net	5.4	6.9	8.3	8.8	9.1	0.6	0.8	1.0	1.1	1.0	4.8	6.1	7.4	7.7	8.0
U.S. Parents'/Affiliates' Receipts	5.5	7.0	8.4	8.9	9.2	0.2	0.2	0.2	0.3	0.3	5.3	6.8	8.2	8.6	8.9
U.S. Parents'/Affiliates' Payments	0.1	0.2	0.1	0.4	0.1	0.8	1.1	1.2	1.4	1.3	-0.7	-0.9	-1.1	-1.3	-1.2
Unaffiliated	1.8	2.2	2.4	2.6	2.7	0.5	0.5	1.1	0.7	0.7	1.4	1.6	1.3	1.9	2.0
Other Private Services	22.2	23.0	24.3	27.1	28.1	8.7	11.3	11.4	12.5	13.0	13.5	11.7	12.9	14.5	15.1
Affiliated Services, Net	3.0	2.2	2.9	3.3	3.5	-1.3	-0.6	-0.7	-0.7	-0.7	4.3	2.8	3.6	4.0	4.1
U.S. Parents'/Affiliates' Receipts	5.4	5.1	6.2	7.4	6.9	2.8	2.7	3.0	3.1	3.0	2.6	2.4	3.1	4.3	3.9
U.S. Parents'/Affiliates' Payments	2.4	2.9	3.3	3.2	3.4	1.5	2.1	2.3	2.4	2.3	0.8	0.8	1.0	0.8	1.1
Unaffiliated Services	19.2	20.8	21.5	23.7	24.7	10.0	12.0	12.1	13.2	13.7	9.1	8.8	9.4	10.5	11.0
Education	3.5	3.8	4.1	4.4	4.4	0.5	0.5	0.6	0.6	0.6	3.0	3.3	3.5	3.9	3.8
Financial Services	3.3	3.7	3.8	4.6	5.2	1.8	2.1	1.7	2.0	1.9	1.5	1.7	2.2	2.7	3.3
Insurance	2.0	2.3	1.6	1.6	1.7	2.2	3.2	2.8	2.9	3.1	-0.2	-0.9	-1.2	-1.3	-1.3
Telecommunications	1.8	2.1	2.4	2.6	2.6	3.3	3.7	4.3	4.7	4.9	-1.4	-1.6	-1.9	-2.2	-2.2
Business, Professional, and Technical	4.4	4.3	4.8	5.4	5.6	1.3	1.4	1.6	1.7	1.8	3.1	2.8	3.1	3.7	3.7
Other Unaffiliated Services	4.1	4.6	4.8	5.1	5.1	1.1	1.1	1.2	1.3	1.3	3.1	3.4	3.6	3.9	3.7

Source: Bureau of Economic Analysis, and The Boston Company Economic Advisors, Inc.

The growing volume of service trade is evident from the table. Between 1986 and 1988 total private service exports increased almost 30%, with imports up 23%. In the first two quarters of 1989, the upward trend continued, with private exports up another 10.7% over 1988, and imports up 4.7%. If this trend continues for the remaining two quarters of the year, the surplus on service exports will jump to at least $25 billion, from $19 billion in 1988 and $12 billion in 1987.

For exports, the areas showing the fastest growth in 1989 are travel and other private services. U.S. receipts from foreign tourists increased to an annualized rate of $33.2 billion in the second quarter of 1989, up 13.7% from an annual average of $29.2 billion in 1988. In fact, the increase from tourist receipts was high enough to bring this sector into a small surplus in the second quarter of 1989, following seven years of deficits. In addition to higher receipts from tourism, receipts from other transportation have also increased. This item is directly related to U.S. trade of goods. An increased volume of U.S. merchandise exports combined with higher petroleum prices pushed freight charges up, while higher imports helped to raise port services.

Similarly, exports of other private services increased 13.6% in the first half of 1989, compared to the average for 1988. Most of the growth occurred in education, financial services, business, professional and technical services, and other services with both affiliated and unaffiliated foreigners. As exports are growing faster than imports, the United States is likely to end the year with a larger trade surplus in this category as well.

Conclusion

The importance of international service transactions is now well established, not only because the volume of trade has increased, but because our ability to measure the volume has improved. As greater resources are devoted to collection of the data and as new and more detailed information becomes available, services exports and imports will again require revisions. For this reason, the task of measuring U.S. international service transactions cannot be regarded as complete, and future revisions are indeed necessary to more accurately measure international economic activity.

Table 1
Summary of the Service Economy
(Monthly Indicators)

	1989:4	1989:5	1989:6	1989:7	1989:8	1989:9	1984	1985	1986	1987	1988
Total Employment—Millions	108.1	108.3	108.6	108.8	108.9	109.1	94.5	97.5	99.5	102.3	105.6
Services	82.4	82.6	83.0	83.1	83.2	83.5	69.8	72.7	75.0	77.5	80.3
Goods	25.7	25.7	25.6	25.7	25.7	25.6	24.7	24.9	24.6	24.8	25.2
Total Wages and Salaries— Billions of Dollars	2611.2	2603.5	2621.1	2646.5	2654.4	NA	1838.6	1975.4	2094.0	2248.4	2436.9
Services	1878.3	1870.9	1885.0	1906.6	1909.6	NA	1261.0	1366.5	1468.5	1598.6	1741.4
Goods	732.9	732.6	736.1	739.9	744.8	NA	577.6	608.9	625.5	649.8	695.4
Total Wages and Salaries— %Change, Year-Over-Year	9.1	8.1	8.0	7.9	7.9	NA	9.7	7.4	6.0	7.4	8.4
Services	9.9	8.7	8.8	8.7	8.6	NA	9.3	8.4	7.5	8.9	8.9
Goods	7.0	6.5	6.0	5.8	6.4	NA	10.4	5.4	2.7	3.9	7.0
Consumer Price Index—All Urban, %Change, Year-Over-Year	5.1	5.4	5.2	5.0	4.7	NA	4.3	3.5	1.9	3.7	4.1
Services	4.9	5.0	4.9	5.1	5.1	NA	5.3	5.1	5.0	4.1	4.6
Goods	5.4	5.8	5.5	4.9	4.3	NA	3.4	2.1	-1.0	3.2	3.5
Services Leading Indicator Index (%)*	3.7	3.7	3.5	4.3	4.2	NA	2.3	3.5	4.0	3.0	0.1
Leading Economic Indicator Index—Total (%)*	2.1	-0.6	-0.9	-0.6	-0.1	NA	2.1	3.3	6.6	5.2	2.2
Services Coincident Indicator Index (%)*	3.7	2.5	3.1	4.6	2.8	NA	3.7	3.8	3.1	3.5	3.9
Service Industries Stock Price Index	102.5	108.0	111.6	116.5	121.9	NA	53.0	66.2	86.3	95.4	88.3
S&P 500 Stock Price Index	302.3	313.9	323.7	331.9	346.6	NA	160.5	186.8	236.3	286.8	265.8

** Growth rate expressed in six-month smoothed percent changes at annual rate.*

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics, Center for International Business Cycle Research and The Boston Company Economic Advisors, Inc.

Table 2
Summary of the Service Economy
(Percent Change, SAAR, Except Where Indicated)

	1988:1	1988:2	1988:3	1988:4	1989:1	1989:2	1984	1985	1986	1987	1988
Gross National Product	4.0	3.7	3.2	2.7	3.7	2.5	6.8	3.4	2.7	3.7	4.4
Services	6.5	1.8	4.0	3.4	1.8	3.1	2.5	3.6	3.2	3.7	3.9
Goods and Construction	1.9	5.3	2.6	2.0	5.4	2.0	10.8	3.1	2.3	3.6	4.9
Construction	-8.2	6.8	-0.6	4.0	-4.9	-9.9	12.4	3.7	1.5	-1.4	-0.5
GNP—Product Measure	—	—	—	—	—	—	6.8	3.4	2.8	3.4	3.9
Services	—	—	—	—	—	—	5.4	4.1	3.8	3.9	NA
Goods	—	—	—	—	—	—	10.7	3.9	1.2	3.2	NA
Manufacturing	—	—	—	—	—	—	12.2	3.8	2.3	4.3	NA
Agri./Mining/Construction	—	—	—	—	—	—	7.8	4.0	-0.8	0.9	NA
Consumption Expenditures	6.2	2.5	3.3	3.0	2.0	1.9	4.8	4.7	3.9	2.8	3.4
Services	5.2	2.2	4.5	2.6	3.6	3.8	3.5	4.7	2.7	4.2	3.8
Goods	7.3	2.8	2.1	3.5	0.6	0.1	6.1	4.7	5.0	1.4	3.0
Plant and Equipment Expenditures	5.9	15.7	7.1	-0.9	20.9	10.8	16.6	9.4	-3.9	2.3	10.1
Services	-0.8	21.6	2.4	-2.0	31.5	8.4	13.6	10.4	2.8	3.0	8.6
Goods	16.1	7.9	13.9	0.7	7.5	14.4	20.3	8.2	-12.0	1.2	12.3
Corporate Profits—Current Dollars %Change, Year-Over-Year	29.2	18.7	5.5	24.2	-27.0	-7.7	22.0	-5.8	2.0	6.9	14.1
Services	12.8	20.6	19.6	8.3	-24.6	14.8	18.7	-2.4	21.5	-2.7	5.8
Goods	57.1	16.1	-12.0	51.5	-30.0	-23.3	26.5	-10.3	-25.4	28.8	28.4

Sources: Bureau of Economic Analysis, Bureau of Labor Statistics and The Boston Company Economic Advisors, Inc.

Table 3
Summary of the Service Economy
(Billions of 1982 Dollars, SAAR, Except Where Indicated)

	1988:1	1988:2	1988:3	1988:4	1989:1	1989:2	1984	1985	1986	1987	1988
Gross National Product	3974.8	4010.7	4042.7	4069.4	4106.8	4132.5	3501.4	3618.7	3717.9	3853.7	4024.4
Services	1854.1	1862.5	1880.8	1896.7	1905.1	1919.9	1625.2	1684.3	1738.8	1803.7	1873.5
Goods and Construction	2120.6	2148.2	2161.9	2172.7	2201.7	2212.7	1876.3	1934.5	1979.1	2050.0	2150.9
Construction	374.0	380.2	379.6	383.3	378.5	368.8	367.1	380.8	386.5	381.1	379.3
GNP—Product Measure *	—	—	—	—	—	—	3501.4	3618.7	3721.7	3847.0	3996.0
Services	—	—	—	—	—	—	2312.0	2407.8	2498.9	2595.4	NA
Goods	—	—	—	—	—	—	1132.3	1176.1	1190.6	1228.9	NA
Manufacturing	—	—	—	—	—	—	757.9	786.8	804.6	839.5	NA
Agri./Mining/Construction	—	—	—	—	—	—	374.4	389.3	386.0	389.4	NA
Consumption Expenditures	2570.8	2586.8	2608.1	2627.7	2641.0	2653.7	2249.3	2354.8	2446.4	2513.7	2598.4
Services	1265.9	1272.8	1287.0	1295.2	1306.7	1319.0	1100.3	1152.3	1183.8	1233.7	1280.2
Goods	1305.0	1314.0	1321.0	1332.5	1334.4	1334.7	1149.0	1202.5	1262.5	1280.0	1318.1
Plant and Equipment Expenditures	408.9	424.1	431.4	430.4	451.4	463.1	358.0	391.6	376.3	384.9	423.7
Services	236.4	248.2	249.7	248.5	266.1	271.5	193.6	213.7	219.6	226.3	245.7
Goods	172.5	175.8	181.7	182.0	185.3	191.6	164.4	177.9	156.6	158.6	178.0
Corporate Profits—Billions of Dollars	225.8	235.7	238.9	252.2	233.1	228.5	203.2	191.4	195.2	208.7	238.1
Services	131.2	137.5	143.8	146.7	136.7	141.5	114.4	111.7	135.8	132.1	139.8
Goods	94.6	98.2	95.1	105.5	96.5	90.3	88.8	79.7	59.5	76.6	98.3
Current Account Balance—Quarterly Rates	-32.0	-33.5	-32.3	-28.7	-30.4	-31.0	-26.0	-28.2	-33.3	-35.9	-31.6
Services Balance	4.8	0.8	1.4	8.4	1.5	-0.2	5.2	6.2	6.9	7.5	3.8
True Services Balance **	3.3	4.6	5.3	5.8	5.7	6.8	5.2	3.4	11.6	11.9	19.0
Exports	21.8	22.4	23.4	24.4	25.1	25.9	54.8	56.9	70.9	79.4	92.1
Imports	-18.5	-17.8	-18.1	-18.6	-19.4	-19.1	-49.5	-53.6	-59.3	-67.5	-73.1
Merchandise Trade Balance	-33.4	-31.4	-30.3	-32.0	-28.4	-27.7	-28.1	-30.5	-36.3	-39.9	-31.8

* *Under revision.*

** *True Services Balance is the balance on Service exports and imports excluding receipts and payments on investments and government transactions.*

Sources: Bureau of Economic Analysis and The Boston Company Economic Advisors, Inc.

THE COALITION OF SERVICE INDUSTRIES was formed in 1982 to increase public awareness of the expanding role of the service sector in the U.S. economy. One of the priorities of the Coalition is to improve the adequacy of statistical programs in their measurement and analysis of the service sector.

THE SERVICE ECONOMY is a product of the CSI Task Force on Data Collection and Statistical Improvement. Comments or suggestions should be directed to Maria Eli of CSI, at 202/467-3054.